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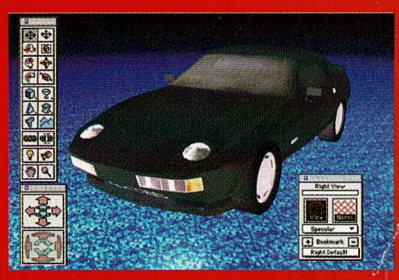

Which e-mailer?

We review the latest updates of four top e-mail packages

PLUS Norton Utilities 3.2 ■ How to handle graphics in alien formats ■ CDs that teach kids about science ■ All the latest news from the year's biggest Mac show

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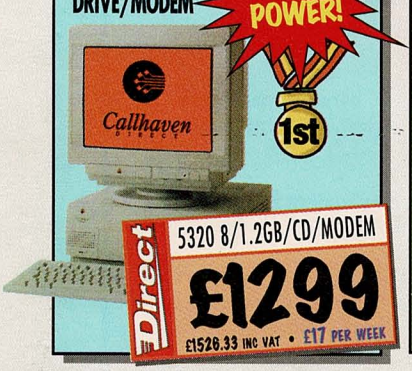

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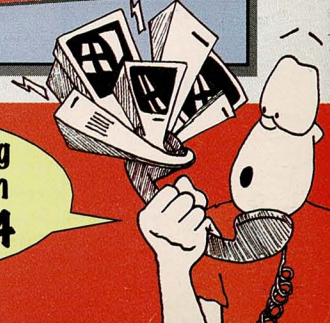

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MACFORMAT

ISSUE 42 ■ OCTOBER 1996

The Finder

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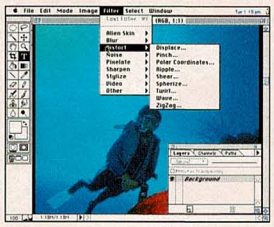
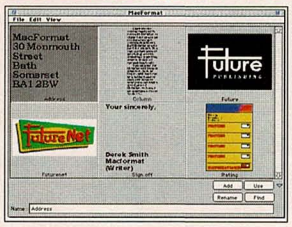
Manage foreign graphics files 72



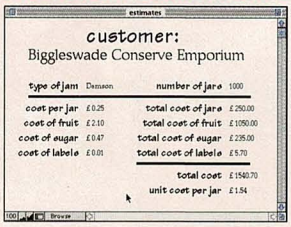
Graphics from other computers or the Net can arrive compressed or in strange formats. Here's the software to unstuff, unzip and generally unmangle them, without the aid of a safety net!

Use hidden gems in ClarisWorks 74



The humble *ClarisWorks* is positively stuffed with hidden gems. Here's how to make the most of two of its advanced word processor features: Outlines and Libraries.

Discover relational databases 76

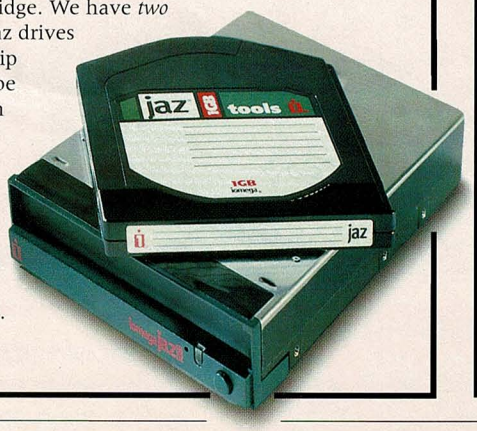


A handy guide to the powerful functions that a relational database can offer you... So which is right for you – *FileMaker Pro 3*, *FoxPro* or *HyperCard?*

WIN! WIN! WIN!

Iomega Jaz drives and Zip drives 138

Feel like your old Mac is being left behind in this whirl of technological innovation? Pep it up with some cutting-edge storage space! The Iomega Jaz drive, worth around £470, can store up to a *gigabyte* on each cartridge. Its baby brother the Zip drive normally costs around £180 and can store 100Mb on a cartridge. We have *two* Iomega Jaz drives plus *two* Zip drives to be won, each complete with a cartridge, courtesy of Iomega and The Mac Zone.



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With new Mac-compatibles from at least three manufacturers arriving daily, how do you keep up? Here's where to find up-to-the-minute details!

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All the news from the year's biggest Mac show, Macworld Expo in Boston, including new Macs, clones, Gil Amelio's keynote speech and the future for graphics and OpenDoc.

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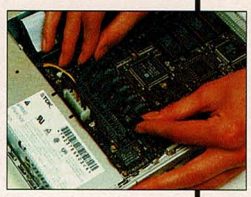

Your Mac problems solved by our experts, including the case of the vanishing File menu, how to get around the Desktop without using your mouse, and how to add more RAM yourself.

Back Issues 128

Has your most precious copy of MACFORMAT become a victim of inexplicable spontaneous combustion? Fear not! Get hold of another one to set fire to!

Free Reader Ads 129

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Whether you're shopping by mail or in person, take our advice and protect yourself.

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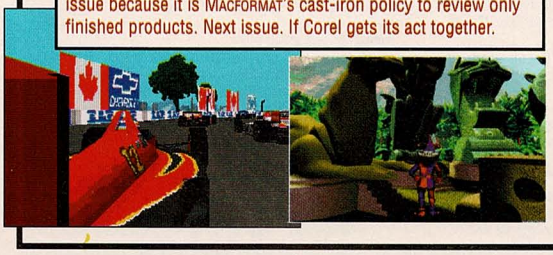
CorelDraw 6
We've been unable to bring you a review of *CorelDraw 6* this issue because it is MACFORMAT's cast-iron policy to review only finished products. Next issue. If Corel gets its act together.



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A new version of Specular's 3D graphics package – more power, same ease of use?
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Nifty gadgets that can make it easier for everyone to use Macs.
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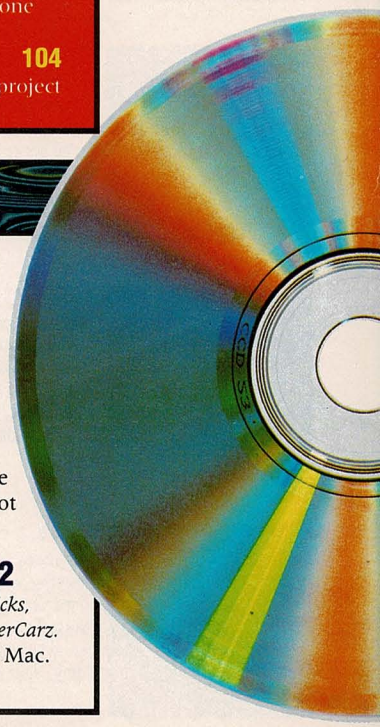
YOUR COVER DISK

MACFORMAT comes in a CD-ROM edition or high-density floppy disk edition every issue:

Your Cover CD-ROM 8
Demos of the amazing landscape creator *Bryce 2*, *Infini-D 3.2*, *Sculpt 3D*, *Eudora Light* and more; the complete new version of Apple's video playback system QuickTime 2.5; playable trial versions of *Descent II* and the manic *Gearheads;* over 100Mb of shareware hot from the Internet, plus everything below...

Your Cover Disk 12
Return to the joys of your childhood with *Bricks*, and try your skills as a racing driver with *SuperCarz*. Plus: six handy utilities to help enhance your Mac.



Welcome to MACFORMAT

Everything you wanted to know about MACFORMAT, plus our view of Mac clones and what they should do next...

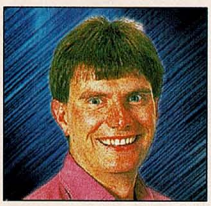
ABOUT OUR WRITERS

ALEX SUMMERSBY

Our Editor learned about Macs by using them, and loved the old one-box design of the Plus, Classic etc. He'd like to see a Mac clone with the power of today's PowerMacs, but portable (not 'luggable' like the current, back-breaking all-in-one Performas). Or an affordable PowerBook...

RICHARD HILL

Our News Editor has followed the rise of the cloners avidly. What he'd now like to see are clones of the *companies* producing Mac-compatibles. 'The Mac can become massively popular,' he says, 'if we get lots more firms doing as good a job as Power Computing and Umax.'



COLIN DALZIEL

Our Disc Editor's ideal Mac-compatible would come with buckets of RAM (72Mb or so), be completely upgradable until the year 2045, have an internal 'TeasMaid' 3.5 inch drive for first thing in the morning, and never ever crash. And it must have a logo as cool as the little Apple.

LINDSAY BRUCE

Our Technical Writer would like to see a clone with MPEG, 64-bit PCI, six CPUs, Jaz drive, 12-speed CD writer, optical hard disk, 24-bit composite and S-VHS input/output and NICAM digital stereo... or maybe just one that didn't crash for no reason when you try to open a folder.

DEREK SMITH

Our technical expert really loves the new clones, not because they're cheaper, not because they have extra features, not even because they have faster processors. No, he loves them for their ingenious security device which means no-one is tempted to steal them: they look like PCs!

ROD LAWTON

Our 'productivity software' specialist says he's tired of Macs that are larger than the average family car. 'I'd like a virtual Mac,' he says, 'that was only a pair of datagloves, some goggles and a box the size of a Corn Flakes packet. No, make that Bite-Size Shreddies...'

YOU?

MACFORMAT is always looking for freelance contributors, so if you know all about some aspect of the Mac (particularly education, graphics or 'business' applications – anything really) and can write with wit and clarity, write or phone the Editor. Your identical twin clone is welcome too.

ABOUT MACFORMAT

Welcome again to MACFORMAT, Britain's best-selling Macintosh magazine. Every issue we bring you:

- Tips, techniques and tutorials covering the range of Mac applications, from graphics, spreadsheets and databases to music, multimedia and games.
- Features about exciting Mac developments and novel uses, accompanied by Cover Disc programs whenever possible, so you can discover what your machine can do and try things you mightn't have tried before.
- All the latest Mac-related news, plus all you want to know about the wider issues, the people behind the headlines and the stories behind the stories.
- Authoritative reviews of interesting and affordable products, with clear buying recommendations.
- Cover Disks and CD-ROMs with demos so you can try software before you buy, useful utilities (specially chosen to complement features in the magazine), selected shareware programs, games, readers' contributions and much more.

Whether you're a veteran or a novice, we'll help you get more out of your Macintosh, whatever you use it for.

A word about prices...

We try to ensure that all prices quoted in editorial pages in MACFORMAT are accurate at the time of going to press, and they are all *inclusive* of UK Value Added Tax at 17.5%. However, this may not necessarily be the case with prices appearing in advertisements, so we recommend that you always contact advertisers before ordering to confirm prices and availability. See also page 132 for some helpful buying advice.

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■ We try to make ourselves available to answer Cover Disc related and general reader calls on Wednesday afternoons from 2pm to 6pm, so please try to ring then. We cannot answer technical queries over the phone – sorry! We hope you'll understand that because we receive so much correspondence we can't promise to reply to faxes, e-mail or mail personally, even if you include an SAE.

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Faulty Cover Disk/CD?
If you have a faulty Disk or CD-ROM, please see page 13.

we also won best supporting role

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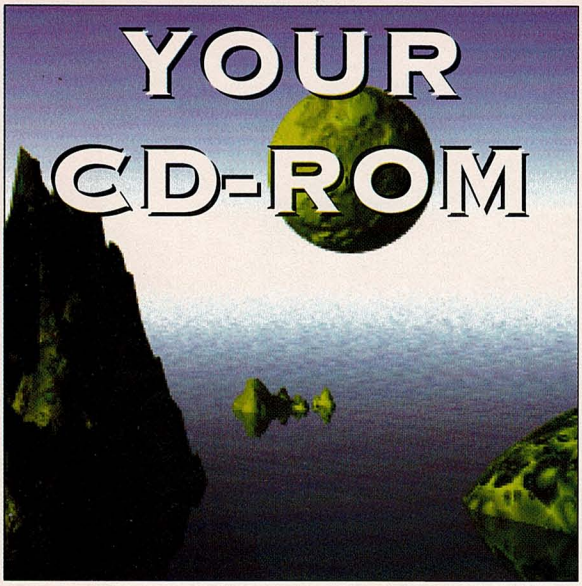


Like an eagle soaring above the clouds, this issue's CD-ROM reaches new heights. With binoculars in hand, Colin Dalziel takes a closer look at what's in store.

Some really impressive demos on this issue's CD, including the first UK demo of *Bryce 2*, the amazing landscape rendering program. There's more 3D creation software in the shape of *Infini-D 3.2* and *Sculpt 3D* demos, and the brand new version of QuickTime 2.5 will make playing your movie clips and CDs better than ever before.

If you're a games fan, there's fast-flying 3D action in the shape of our *Descent II* preview and manic wind-up action in *Gearheads*.

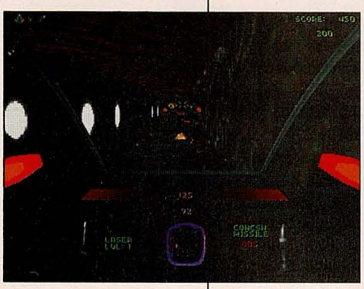
Alternatively, if you're into music in a big way, we've got an unrivalled collection of eight top MIDI and sound manipulation demos. Plus, as always, the Cover CD is rounded off with over 100Mb of the best in new shareware, straight from the Internet.

- **Demos:** top-quality trial versions of the latest graphics packages, games and e-mail software for you to put to the test.
- **QuickTime 2.5:** the newest version of Apple's video Control Panel.
- **Music Round-up:** a collection of the best in music, sound manipulation and MIDI software demos.
- **MACFORMAT 42 Browser:** the easy way to see what's in store on this issue's Cover CD-ROM.
- **Floppy:** all the files from this issue's HD Disk. See page 12 for full details.
- **Readers' Corner:** your section of the disc, crammed full of home-grown software and artwork.
- **Shareware City:** over 100Mb of the latest shareware and freeware, downloaded hot from the Internet.
- **Shareware in MACFORMAT:** All the shareware reviewed in this issue of MACFORMAT, starting on page 116.
- **Resources:** essential Mac software to help you get the very best out of your System, whatever the version.

Descent II preview

Game demo

PowerMac, 10Mb of RAM, System 7.1



More shoot-'em-up action in the 3D world of *Descent*. This preview version of the new *Descent II* enables you to try out three levels of this fast-action flying game.

Your mission is to locate and destroy a nuclear reactor hidden in a web of tunnels. There are hostages to rescue and of course enemy ships to blast away. Once you've destroyed the reactor, you'll have to make a quick exit to avoid being caught in the monstrous explosion.

Because of the powerful graphics and extensive features of the game you'll need a PowerMac with a minimum of a 13-inch colour monitor before you can take off.

RUN TIME!

Some of the demos on the Cover CD require installation on your hard disk – they won't run direct from the CD. Most of these programs use an installer: once you've double-clicked on it just follow the on-screen instructions and you should be fine. Even if there's no installer, it often helps to copy demos to your hard disk – at the very least they should run faster!

Bryce 2

3D landscape and image generator demo

Requires: Quadra or better, 8Mb of free RAM, colour monitor, 23Mb of hard disk space

We were overwhelmed by your response when we included the original *Bryce* demo on the Cover CD of MACFORMAT 31 and so we're very pleased to be able to bring you the latest demo of *Bryce 2*. This save-disabled version enables you to try out all the features of the amazing *KPT Bryce*, but does put a watermark on all your rendered images.

With its new tools and controls, you'll be able to generate even more realistic landscapes and scenes at the touch of a button. And thanks to the icon-based drawing tools, it's easy to get started with your first creation – soon you'll be rendering your own planet full of wonderful landscapes.

If you want to find out more about this amazing package, take a look at our review in MACFORMAT 38, where *Bryce 2* earned itself a Classic-award-winning 93%.

Rendering the images may be time-consuming, but the quality of your final pictures is well worth the wait.

Because 3D rendering is so processor-intensive, you'll need a Quadra or PowerMac to run *Bryce 2* and plenty of spare RAM available.

By using the amazing range of drawing tools in *Bryce 2* you can design a wire frame, which when rendered will create a photo-realistic image containing incredible detail.

Gearheads

Game demo

Requires: Quadra or better, 8Mb of RAM, System 7.1, 256-colour monitor

Following our review of Gearheads in MACFORMAT 41, where it scored an impressive 79%, we have scoured the world for a demo of this crazy game. The action starts with a selection of wind-up toys and you have three to choose from in this demo version. Your mission is to get 21 toys across the board before your opponent does the same.

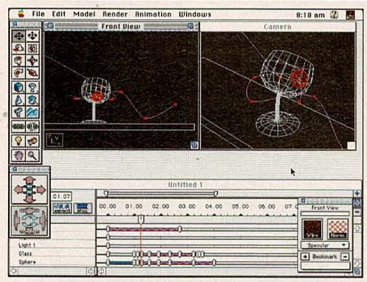
To get the wind-up weirdos across the screen you must try to release them in a clear section of the playing area. A clock is used to automatically wind up each toy, but you must make sure they are fully wound, or they'll run out of steam before they get to the other side. You can use your toys to block those of your opponent and each toy has different powers, including speed and strength. You can play on your own or, if you want some real fun, get your friends round for a two-player game.

It's a frantic race to get your toys across the board before your opponent in *Gearheads*.

Infini-D 3.2

3D graphics demo

Requires: any Mac with FPU or PowerMac, 6Mb of RAM, System 7.0, 13-inch colour monitor



Infini-D 3.2 gives you powerful tools enabling you to create and render 3D models with the added bonus of easy to use animation options.

Infini-D has set new standards in the field of easy-to-use 3D creation software. Version 3.5 is just out (see page 86), but Specular has just released this save-disabled demo of v3.2, which enables you to try out the features. It supports QuickDraw GX as well as drag-and-drop – you can just drag a texture directly onto your model.

If you really want to impress people with the power of this program (and your Mac), try creating a sphere and then simply drag the Map image from your **Scrapbook** onto it, creating a perfect planet Earth. Using the **Animation** tool, you can then move the **Camera position** around the globe to produce the illusion of the world turning – loop the movie and your have a complete world, spinning round and round.

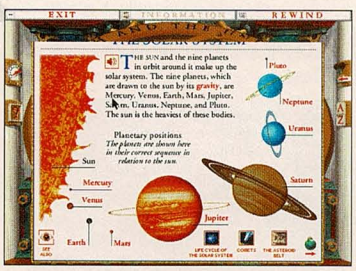
Science Software

Educational multimedia previews & demos

Requires: see individual Read Me files for details

EXIT
INFORMATION
REWIND
RESONANCE
All objects vibrate with a particular frequency, or regularity. The swinging of a pendulum is an obvious movement, but the particles that make up any object vibrate too. Resonance results when the vibrations of an object are matched with similar vibrations. That is why soldiers never march in time over a bridge. The vibrations of their marching could match and increase the bridge's vibrations, causing it to break up and collapse.
Breaking glass
A resonating sound wave of the same wavelength as the natural vibrations of the glass.
A RESONATING BRIDGE COLLAPSES
In 1940 a strong wind caused a bridge to resonate and collapse over the Tacoma Narrows, Washington State.

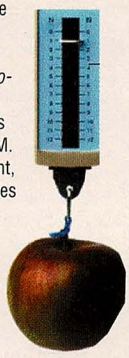
The award-winning Dorling Kindersley series gets scientific in this great encyclopaedia.

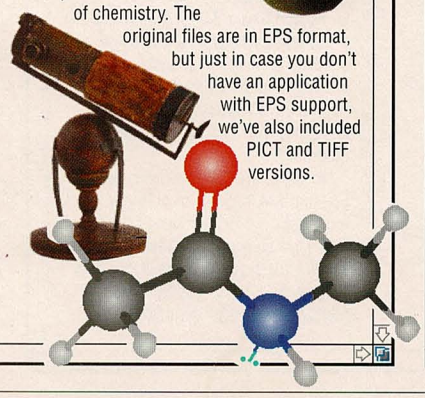

EXIT
INFORMATION
REWIND
THE SUN and the nine planets in orbit around it make up the solar system. The nine planets, which are drawn to the sun by its gravity, are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. The sun is the heaviest of these bodies.
Planetary positions
The planets are shown here in their correct sequence in relation to the sun.
Sun
Mercury
Venus
Earth
Mars
Jupiter
Saturn
Uranus
Neptune
Pluto

From sound waves to distant planets, this demo shows off a great depth of knowledge.

There are three packages in the science section of our Cover CD. The first is a rolling demo of Dorling Kindersley's *Encyclopedia of Science*, giving you a chance to examine the features of this great reference CD-ROM.

If you're a chemistry student, *Molecules-3D Test Drive* enables you to visualise the molecular make-up of a range of substances, up to six atoms per molecule. *ChemClipArt 1000* gives you a selection of clip art from the world of chemistry. The original files are in EPS format, but just in case you don't have an application with EPS support, we've also included PICT and TIFF versions.

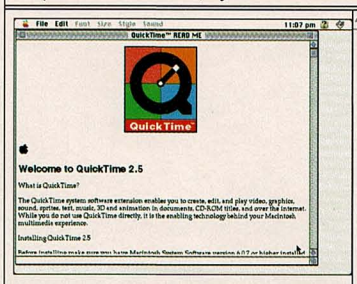




QuickTime 2.5

Video Control Panel

Requires: LCII or better, System 7.0 or later


QuickTime™ READ ME
QuickTime
Welcome to QuickTime 2.5
What is QuickTime?
The QuickTime system software extension enables you to create, edit, and play video, graphics, sound, sprites, text, music, 3D and animation in documents. CD-ROM titles, and over the Internet. While you do not use QuickTime directly, it is the enabling technology behind your Macintosh multimedia experience.
Installing QuickTime 2.5

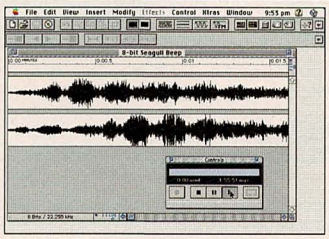
Apple's QuickTime software has become the standard for cross-platform video delivery. This brand new version brings greater speed and performance, meaning you get smoother playback whatever software you're using to view your video footage. Better still, the enhancements don't just apply to video – QuickTime aware applications can now support a larger range of file formats, including *Adobe Photoshop*. This means you will now be able to open your *Photoshop* files using *Simple Text*.

Playing audio CDs on a Mac has also been made easier with the addition of an **Autoplay** option. So, when you load an audio CD it will automatically start playing. Other sound enhancements include improved MIDI capabilities that will enable you to get full CD-quality sound from MIDI files. And as if that wasn't enough, you can now get karaoke! Yes, QuickTime 2.5 can play MIDI Karaoke files, which also display the words on your screen while the music plays. How long will it be before we get a *Sing-along-a-Macs* demo?

Music demos

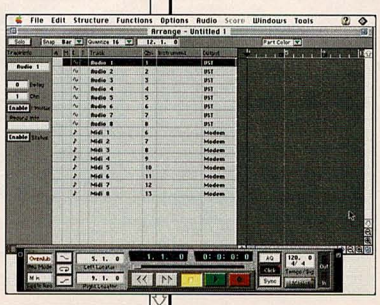
Various sound and MIDI demos

See individual Read Me files for details



SoundEdit 16 v2 is perfect for fine tuning your sound for multimedia productions.

This is possibly the best collection of music-related demos we've ever assembled. There are trial versions of some of the top programs, including the best selling MIDI sequencer *Cubase, SoundEdit 16 version 2* and demos of the two music plug-in systems reviewed on page 100 – *CyberSound FX* and *Hyperprism-PPC*. There are also demos of the highly rated *Cubase Virtual Studio Technology* and *Deck II*. So whatever your needs, whether you want to mix tracks or create them from scratch, there's something here for you.



If you use MIDI in any way, our great music collection has the best demos available.

Continued on next page

With version 2.5 of QuickTime there are a whole range of new features, including faster video playback.

CUSTOM ICONS

The icons we use on the CD help to give it a friendly atmosphere, but they do slow it down. Install *CDIcon-Killer*, which is in the Resources folder on the CD, if you want to speed things up.

FLOPPY OR CD?

MACFORMAT is available in two editions: one with a CD-ROM and one with a high-density floppy disk. Details of the floppy programs start on page 12. The CD contains all the software that's on the HD Cover Disk, in a folder called **Floppy**.

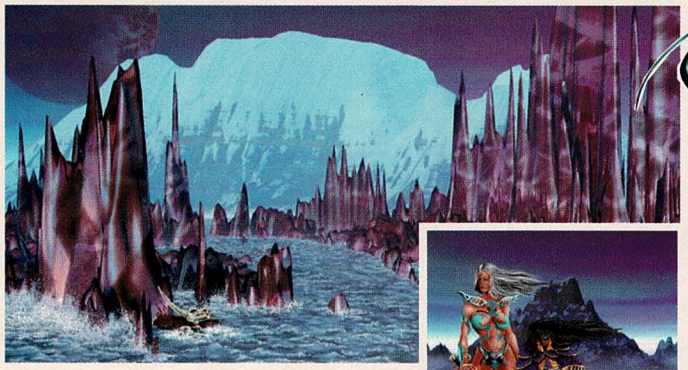
PROBLEMS?

If you have problems quitting any of the rolling demos on the Cover CD, just press **[command] Q** and you should go back to the Finder. If this doesn't work, press **[command] [option] [escape]** to Force Quit.

Readers' Corner

Your contributions

Requires: see individual Read Me files for details



Sean and Deb – who don't reveal any more about themselves – created these wonderful images.

This issue we're pleased to publish more great offerings from you, the highly talented readers of MACFORMAT.

Regular contributor Charles Kaufman has provided us with more of his wacky clip art, as well as a new innovation in the shape of his Digital Happy Birthday card.

The inventive Simon Terrey has created some wonderful images which neatly combine 3D rendered models and real-life photographs.

A neat trick comes from Anthony Johnson, who has produced the first interactive CV we've ever seen.

Finally, if you like custom icons and Desktop Patterns, then check out Daniel Counsell's folder, which is stuffed with over 300 different icons.

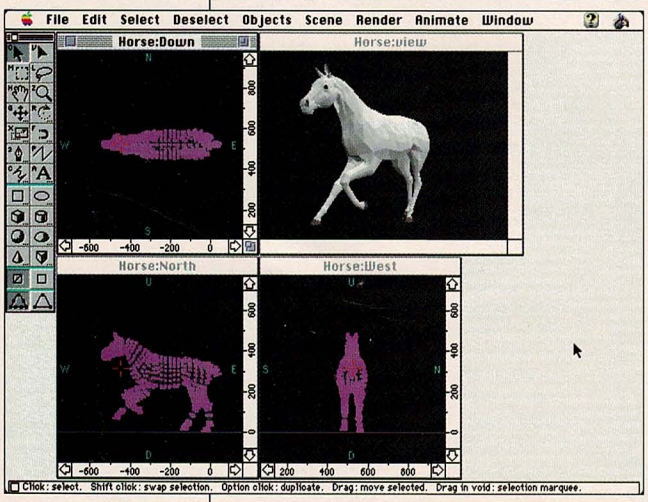
As always, we love to see your work. If you'd like to share your talents with over 50,000 MACFORMAT readers, then send your contributions on floppy, CD or SyQuest to: The Disc Editor, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

Simon Terrey wins a prize for these images, which he created using a combination of real photographs and image manipulation techniques.

Sculpt 3D

3D graphics demo

Requires: Mac with FPU or PowerMac, 4Mb of free RAM, System 7.0, 13-inch colour monitor


File Edit Select Deselect Objects Scene Render Animate Window
Horse:Down
Horse:View
Horse:North
Horse:West
Click: select. Shift click: swap selection. Option click: duplicate. Drag: move selected. Drag in void: selection marquee.

Models can be as simple or complex as you want with the powerful 3D package *Sculpt 3D*.

Buying 3D rendering software is often a very expensive business, but now the powerful 3D package *Sculpt 3D* has been dramatically reduced in price – buy it now and you can save yourself nearly £1,000. Now selling for under £400, this spectacular software from the Byte By Byte Corporation is suddenly within reach of more people than ever before.

Sculpt 3D is a 3D rendering and modelling package, and this save-disabled demo version enables you to put the program through its paces, finding out all about the marvellous structures you can create using 3D rendering.

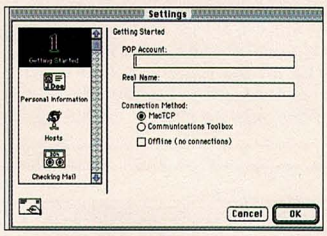
Included are text files which give you tips and tutorials to help you get the most from this versatile software. There is also a very informative interactive tutorial which teaches you how to apply textures to the fantastic models you create using *Sculpt 3D*.

Eudora Light

E-mail software

Requires: any Mac, System 7.0, ISP account

For the easiest way to get into e-mail, try out *Eudora Light*. This easy-to-configure software takes you step by step through all the stages you need to get set up for on-line mailing. Once you've entered all the information required, you'll be able to check or send your mail. *Eudora Light* will call up your service provider at the click of a button and you can become part of the e-mail network. You'll need to have a modem and an account with an Internet service provider.



MACFORMAT 42 CD Browser

The easy way to preview what's on the CD!

Requires: LC, 4Mb of free RAM, System 7.1

For a quick and easy way to view the contents of this issue's Cover CD, try the MACFORMAT Browser. Using its easy point-and-click interface you can find out all about the contents of our Cover CD. You can also find out more about past issues of MACFORMAT and, should you want to buy a back copy to complete your collection, all the information you need is here. Just point and click and you're free to explore.

Chaos Overlords

Game demo

Requires: LC, 4Mb of free RAM, System 7.0

It's the 21st century. You play the part of a gangland leader (or overlord) in lawless times. You must try and kill off five other overlords and gain control of the city. It's tricky, because in this board-based game you have only skill and strategy to outwit your adversaries. Our demo enables you to play a full scenario but you only have a limited number of turns to achieve your goal.

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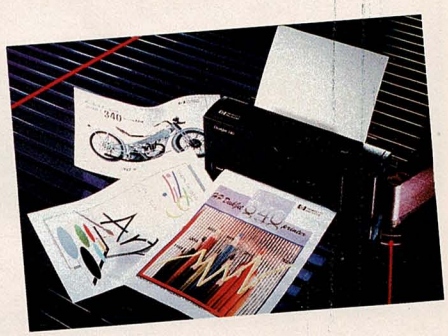
**Rechargeable battery optional*



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YOUR COVER DISK

Like the burning sun in the desert (or South Wales), this issue's Cover Disk is hot stuff. Colin Dalziel slaps on the Factor 30 before finding out what's in store...

Nine pieces of software to tempt you on this issue's disk, including a great shareware racing game sent in by a MACFORMAT reader, a building block simulator, an alphabet card game, utilities for cutomising your Mac, both at Startup and while it's up and running, and much more. In fact there's almost 4Mb of great software for you to get your disk drive stuck into.

START HERE

High density floppy disks normally contain up to 1.4Mb of software, but to bring you as much as possible, we use a compression program to fit more on. So you need to decompress the software before using our Disk, and this issue you'll need 4Mb of hard disk space. We also recommend that you always make a backup of the MACFORMAT Cover Disk, just in case anything goes wrong.

Here's what to do...

Backing up your Cover Disk

1. Ensure that the original MACFORMAT Cover Disk is write-protected (move the tab so that you can see through the hole) and insert it in the disk drive.
2. When the icon appears on the Desktop, drag the Disk's icon over your hard disk's icon. This copies the contents onto your hard disk, but they are still compressed and cannot be used yet.
3. Drag the Cover Disk icon to the Wastebasket to eject the Disk.
4. Now insert a blank, formatted high density disk. Did we mention that you'd need that? Oops.
5. Finally, drag the MACFORMAT 42 folder from your hard disk on to the blank disk's icon to initiate your backup.

Decompressing the Cover Disk contents

1. To decompress the Cover Disk contents, open the MACFORMAT 42 folder on your hard disk and double-click on the MACFORMAT 42 icon.
2. You'll see a screen telling you about the compression utility we've used. Click **Continue** to go on.
3. A box then asks you where you want to save the software. Choose the place on your hard disk where you want everything stored and click **Save** to get this issue's programs.

Just a word of warning...

Before installing the Cover Disk, we recommend that you always back up any important work on your hard disk. This precaution will avoid problems should it transpire that any of the software isn't compatible with your set-up.

We make every effort to check our Cover Disks for compatibility and viruses, but the information here is intended as a guide only, and MACFORMAT cannot be held responsible for any damage to data, any inability to use this software or any resulting losses. So please, take the precaution of backing up first.

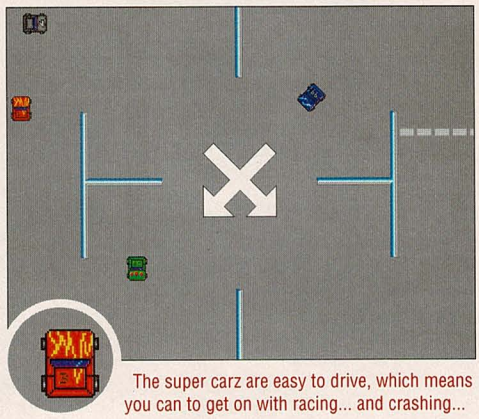
Super Carz v1.0

Racing car game

Requires: LC 475 or better, 2Mb of free RAM, System 7.0 or later, 14-inch colour monitor.

After noticing a shortage of racing games for the Mac, MACFORMAT reader Fenwick Cooper wrote his own. Thankfully, Fenwick decided to share his creation, *Super Carz*, with us and now it's your turn to have some fun with this superb game. This demo brings you the option to try out the first two courses of the 16 available in the full, registered version.

The controls are simple to master – you need to use just two buttons to steer your car around the track. There is also the choice of either one or two player options, so you can take on either your Mac or a friend.



The super carz are easy to drive, which means you can to get on with racing... and crashing...

Once the race begins, it's nothing but fast action as you try to manoeuvre around the course. The other competitors are less than careful with their driving, so you'll have to stay clear of your opponents if you want to be first to the chequered flag. If you like the game, registering won't break the bank – it only costs £1.25 (inc postage) to get the code which enables you to gain access to all the levels. For more fast racing action, turn to page 120.

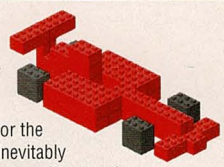
Bricks

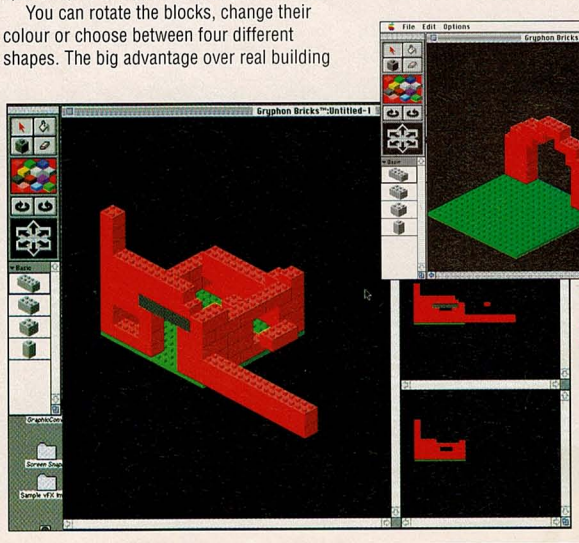
Building block simulator

Colour Mac, System 7.1, 2Mb free RAM

Bricks is a building block simulator which should look familiar if you've grown up at any time in the last 30 years. Similar to the Lego concept, you start modelling with a green base and a selection of coloured blocks. You can then simply click the blocks into place, creating in an interlocking pattern, building racing car, spaceship or scary monster of your choice.

You can rotate the blocks, change their colour or choose between four different shapes. The big advantage over real building blocks is that you don't have to pick up the stray blocks out of the carpet at the end or hunt for the one that almost inevitably falls down the back of the settee!





You can build whatever you want with the addictive building block simulator *Bricks*.

GOT A PROBLEM?

If either your cover-mounted high density disk or CD-ROM is defective, return it to us and we will replace it. Please make sure you have followed the installation procedures described in these pages correctly, to ensure that there is a physical problem with the disk itself. Otherwise, the replacement will be just the same!

Return HD disks to:
TIB plc, TIB House
11 Edward Street
Bradford, BD4 7BH

Return CD-ROMs to:
MACFORMAT CD returns
Andy Pope, Ablex
Harcourt
Halesfield 14
Telford, Shropshire, TF7 4QR

Enclose a self-addressed padded envelope (but we'll pay return postage) with the disk or CD, and a description of the fault. Please do not return disks or CDs to the editorial office; we don't hold any stocks of them and can only refer you to the addresses above.

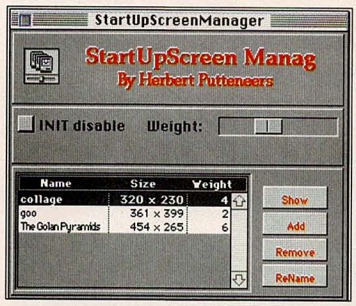
StartUpScreenManager

Start-up utility

Requires: any Mac, System 7.0 or later

It's all very well having a custom Startup screen, but it can get a bit boring when you have to look at the same screen, time after time. *StartUpScreenManager* is a Control Panel which eases the boredom by randomising your Startup screens. All you have to do is drag the *StartUpScreenManager* onto your closed System Folder – your Mac will put the software in the right place for you. If you then open the **Control Panels** folder, which is inside the **System** folder, you will find the *StartUpScreenManager*.

To get your images into the software and ready to display, just double click on the *StartUpScreenManager* icon. You'll be presented with a dialogue box where you can specify which images the application is to use. This box also enables you to give your favourite images a higher weighting so they appear on your screen more often than others. You don't need to prepare special file formats; PICT files or *MacPaint* files are automatically converted to the right type. Once you have added your images, close the Control Panel and **Restart.** You won't get a custom screen the first time you **Restart** as this just installs the program, but every time after that, a randomly picked Startup screen will appear.



Set up this easy Control Panel and you can see a different Startup Screen every time you Restart your Mac.

INSTALLING EXTENSIONS

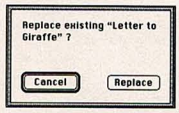
It couldn't be easier to install System Extensions and Control Panels – just drag them over your closed System Folder and your Mac puts them in the right place for you. Then all you need to do is restart.

Utilities

Various helpful little gems

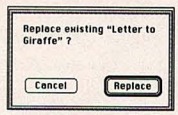
Requires: See individual Read Me files for details.

Key Tools provides you with a collection of four handy keyboard short-cuts. You can configure *Key Tools* to enable you to click on any button in a dialogue box by holding down the **[command]** key and then pressing the first letter of the specific option you require. You can also set up the keyboard short-cuts to automatically type the date, time and even everything you've done since you last clicked the mouse button!



There's no need to reach for the mouse when you want to update a file. Just install *Replace*.

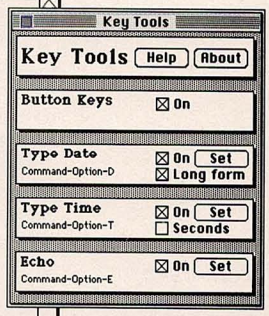
Quit It is a handy utility which prevents you accidentally leaving applications running in the background. When you close the last open window in an application, you are presented with a dialogue box which asks if you want to quit the application or keep it running. Simple, but very helpful.



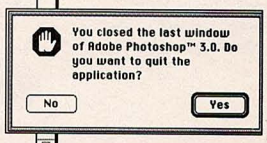
When you are replacing a file using the **Save As** option, you are always asked if you want to replace the original via a dialogue box. The default button is **Cancel**, which means you have to use the mouse to select **Replace.** With the handy *Replace Extension* installed, the **Replace** button becomes the default, meaning you can simply hit the **[return]** key to update your file.

PaperClip gives you a last line of attack if you have a disk stuck in your floppy drive. It will eject disks which are stuck because of Extension conflicts or other software problems. Just double click on the *PaperClip* icon and any disk in the floppy drive will be automatically ejected. It won't work for every stuck floppy, and obviously not for those stuck because of mechanical problems, but it is well worth trying before you resort to sticking real bits of straightened paperclip into your Mac!

No more memory-hogging applications sitting inactive in the background, thanks to *Quit It*.



Key Tools saves you time by giving you shortcuts to automatically type commonly used information.



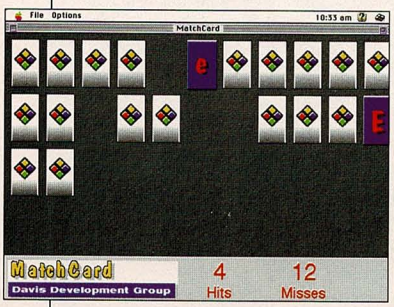
Match Card 1.0.1

Alphabet card game

Requires: colour Mac

Match Card is designed to help your young children learn and recognise the letters of the alphabet while they have fun at the same time. To begin the game you have to open a **Game Set** from the **File** menu. There are three **Game Sets** included, and these enable you to play with the first 13 letters of the alphabet, the last 13 letters or the full 26.

Once you've selected your **Game Set** you're presented with a collection of cards which are face down. The idea of the game is to turn over two cards by clicking on them, aiming to create a matching pair of a lower case letter and its corresponding capital. The game keeps count of how many attempts it takes you to clear the board, so, while you're busy enjoying yourself, you can easily work out if your pairing skills are improving as you play.



The game is simple, and it's a great way to teach your young Mac fans the alphabet, without having to cut up pieces of paper.

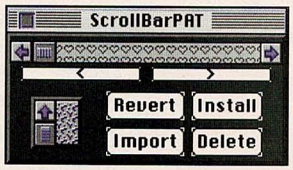
ScrollBarPAT

Desktop utility

Requires: any Mac, System 6.08 or later.

One of the best things about the Mac is the way you can customise it in your own unique style. Just about every part of the Mac has been addressed in one way or another, but the appearance of the scrollbars has largely escaped any sort of make-over. In the past, software has enabled you to change the colour of the scrollbars, but *ScrollBarPAT* actually enables you to change the pattern. There are 24 different patterns to choose from, and if that isn't enough, there's also the facility for you to create and add your own designs.

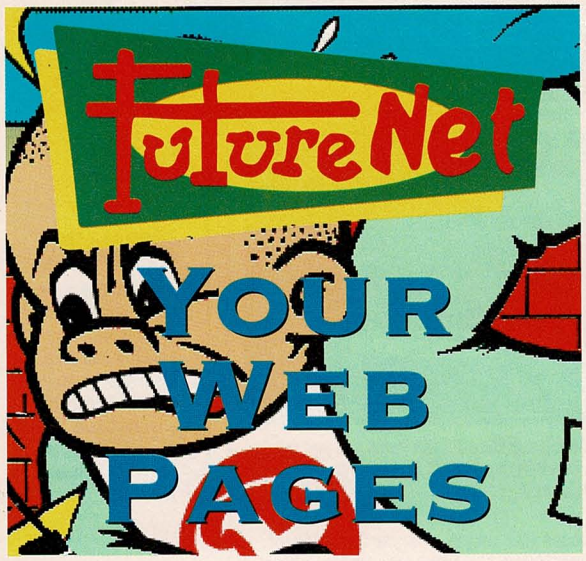
When you open *ScrollBarPAT* you are presented with a simple box which enables you to flick through the available patterns. Find one you like, click on the **Install** button and your scrollbars will be transformed! Our favourite in the MACFORMAT office is the lovehearts. Gorgeous.



Be the envy of your friends with your own customised scrollbar patterns.

A LITTLE OF WHAT YOU FANCY!

Is there a particular piece of software you'd like to see on the floppy? Have you seen a useful utility that our other readers ought to know about? If you've got any ideas for the floppy, then let us know by writing to the address above.



Join the in-crowd! Take a look at FutureNet, one of the most popular Web sites in Europe.

With over 350,000 registered readers, FutureNet is one of the most popular World Wide Web sites in Europe. With pages from all of Future Publishing's magazines, including MACFORMAT, FutureNet offers something new every weekday, from news and reviews to treats like the *Total Football* Forum.

MACFORMAT's own Web pages are at **http://www.futurenet.co.uk/computing/macformat.html**. Here you'll find useful advice and reviews in easy-to-browse categories, plus news and full details of what's in each new issue before it hits the stands or lands on your doormat. **RICHARD HILL**

CONFUSED?
If you want Internet access but don't know where to start, MACFORMAT 39's massive Net feature arms you with all you need to know to get connected. Turn to page 128 to find out how to get your copy.

What's new
What's hot
What's cool
Computing
Videogames
Entertainment
Sport
Music
Craft
Search
Jobs
Advertise
FutureNet
FutureNet is a popular place, and some bits are more popular than others. Here, just for you, we list the pages that have been hit the hardest over the last few weeks.
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This is the news... All the top goings on from the UK and around the world, including war, crime, politics, showbiz and, of course, the astonishingly popular Euro 96 footy tournament. Find out all about them here.
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Sex, smut, filth, call it what you want. If you're not getting enough, get some more with the this in-depth probing of sex on the Internet, from .net
The Ultimate Macintosh
If you've got a Mac, you need this. The definitive set of links and resources for Mac users - hints, software, games, it's all here, courtesy of MacFormat
The PC Gamer Hotlist
Everyone's been Quaking in their boots waiting for id to release their latest blasting masterpiece. Now you can get it, and some other, lesser known games, from our mega-bandwidth ftp server - thank you, PC Gamer
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Getting connected

All you need to connect to FutureNet is a modem and an Internet account like Demon or CityScape, or a direct server connection through work or college. There are no hidden charges – FutureNet is free! Use your World Wide Web browser to connect to

http://www.futurenet.co.uk/

THE POWERPC WEB

Can it be only two years since the first Power-Macs were introduced? As you can see in our cover feature (starting on page 34), the promise hinted at with the debut of the first computers to use the PowerPC chip is now flowering, with bigger, faster Macs and Mac-compatibles giving you the finest choice you've ever enjoyed.

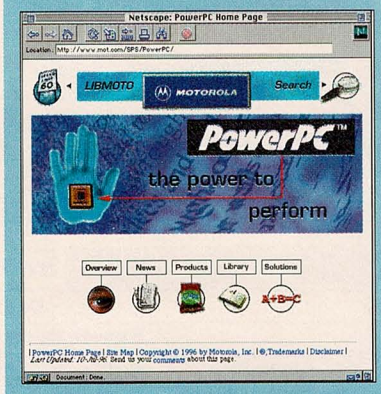
The Mac is changing fast, with new processors, new manufacturers and fresh ideas transforming it forever. To get the best sense of where the Mac is headed, maybe you need to look at the ultimate reference source – the giant World Wide Web. You'll find a variety of useful sites dedicated to the PowerPC chip that drives these new machines. How useful they are depends on the type of information you need.

Let's start with the basics – what Mac-OS-capable computers are available? The Apple UK site at **http://www.euro.apple.com/uk/** carries a product list of the current British range. At the moment it's still under construction, but there are product sheets for most, but not all, of the current Mac range. You'll need *Acrobat Reader* (available on the MACFORMAT Cover CD or from

For local information on the Umax range of Mac-compatibles, see the IMC Computer site.

http://www.adobe.com/) to read them – they are, however, clearly designed for reading on paper rather than on-screen.

Apple's alternative is AppleFacts Online (**http://product.info.apple.com/productinfo/datasheets/**). This is an excellent resource with full details of Apple's full range of products –



Motorola is hard to beat for solid facts on the growth of the PowerPC industry.

but it's aimed at the American customer, so you'll find there are minor differences between the models listed here and those you can buy in the UK.

Each of the three main firms to have produced Mac-compatible computers – Power Computing, DayStar and Umax – has a Web presence. Power's site (**http://www.powercc.com/**) is certainly the most entertaining site of the three, with a lively, confident feel, although

Power Computing is ready to take on the world, if its Web site is any guide.

again you'll need to remember that the pages are intended for an American audience.

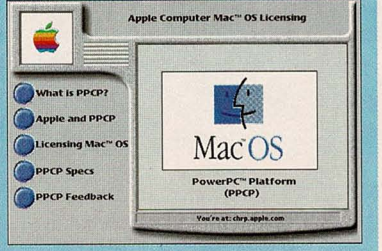
The best place to check facts on Umax machines is at distributor IMC Computer's site (**http://www.worldserver.pipex.com/imc/ucd/**) – the alternative is Umax's own pages at **http://www.supermac.com/**, but again these are very US-orientated – even the names of the computers are different over here, it seems. IMC Computer gives you basic details of the Umax machines – correct names and all – in an attractive and colourful site.

Of all the clone makers, DayStar (**http://www.daystar.com/**) aspires to give you the most information – not surprising, as it's the brains behind the Mac's multiple processor (MP) technology (see our cover feature for details). It does give you more than just spec sheets, but at the moment it's not quite the definitive, up-to-date source for MP information – it's some time since its comprehensive list of MP-compatible software was updated, for example.

All these sites deal with current product ranges.So, where do you go if you want more detailed data about the PowerPC chip – how it works and how it's being used?

Despite the huge scope of the Web, when it comes down to it there are only two sites that give you the depth a discerning MACFORMAT reader should expect. These two come from the makers of the PowerPC chip itself – IBM and Motorola. Both IBM at **http://www.chips.ibm.com/** and Motorola at **http://www.mot.com/GSS/MCG/** offer densely-packed, if slightly technical, pages crammed with background information on the PowerPC chip – how it's designed, where else it's used apart from the Mac, and what kinds of chips you can expect to see in the future. For our money, the Motorola site is more accessible, with several strong overviews that do offer relief from both sites' overwhelming techiness.

For a glimpse at the future of the PowerPC (and, of course, the Mac), hop over to Apple's PowerPC Platform page (**http://chrp.apple.com/**), an overview of how the firm's Mac licensing arrangement works and what 1997's new computers will offer.



The PowerPC Platform represents the next step in the PowerPC chip's evolution.

It's here!

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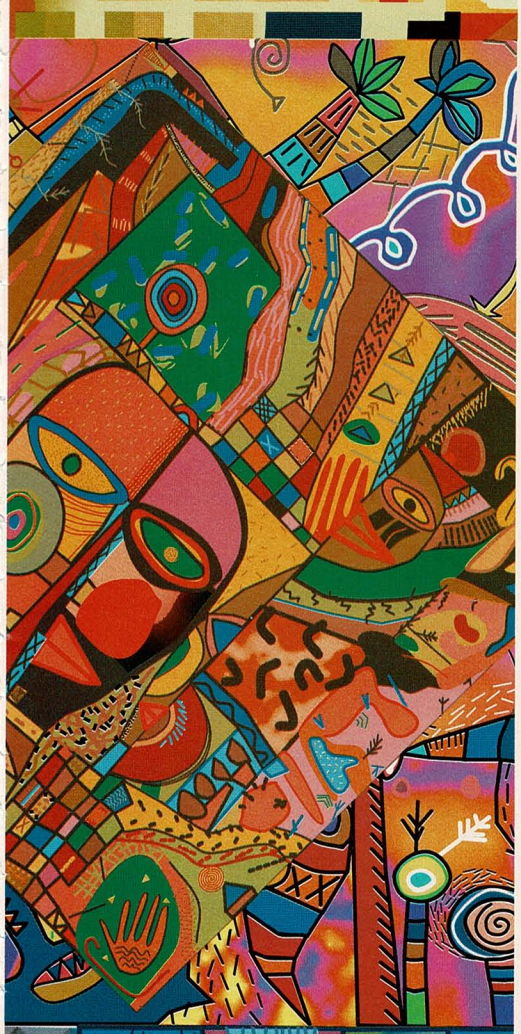

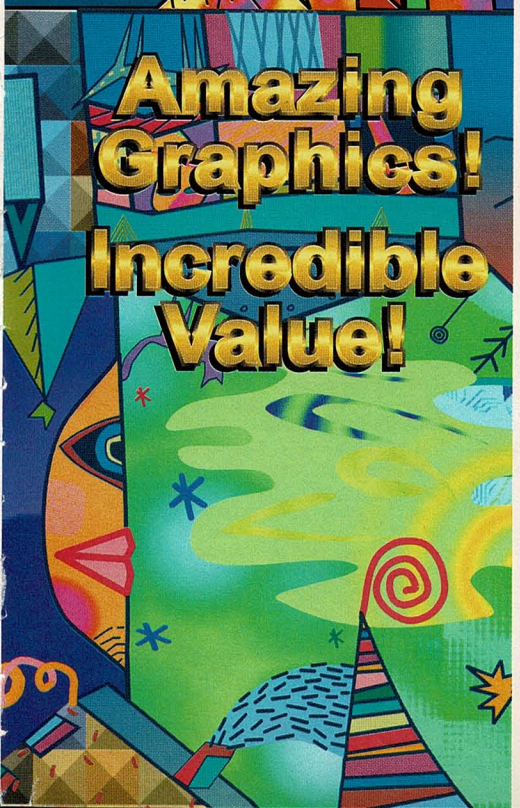

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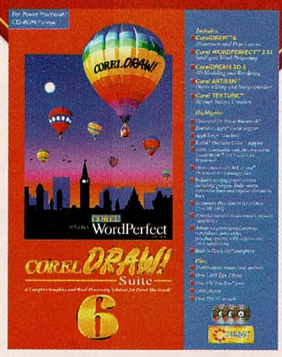

Accelerated for Power Macintosh

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PERFORMA 6200

FREE DK SAMPLER

GH 6200 MACs include 'PLUS 2' software collection... ClickArt, Claris Works, Hypercard Player, MacGallery, Mavis Beacon, Millie's Maths House, System Software, PC Exchange, Spin Doctor, SuperMaze Wars and Thinkin' Things 2 PLUS... EA 3D ATLAS, REDNEX, SNOOPY, ASTERIX LANGUAGE, CONCERTWARE, MYST, GROLIER ENCYCLOPAEDIA, ROCK-RAP-ROLL, MAKING MUSIC, DORLING KINDERSLEY "The Way Things Work" and DAEDELUS ENCOUNTER... ALL ON CD! *NB. Some titles are pre-installed and NOT packaged. CD Disks are provided separately.*

	RAM	HD		MONITOR	CD	TV	K/B	Price
6200	8Mb	800Mb	✘	✘	✔	✘	✘	£654
	8Mb	800Mb	✘	14" M/S	✔	✘	✔	£949
	8Mb	800Mb	✘	15" M/S	✔	✘	✔	£1009
	8Mb	800Mb	✔14.4	14" M/S	✔	✘	✔	£959
	8Mb	800Mb	✔14.4	15" M/S	✔	✘	✔	£1019

WHILE STOCKS LAST!

PERFORMA OPTIONS

The following options are all suitable for use with Apple Macintosh Performa 630/5200/5260/5300/5320/6200/6300/6320 models...

PERSONAL COMMS SOLUTION *(models without Ethernet)* FAX, ANSWERPHONE, & INTERNET etc... 14.4 version £109 28.8 version £179

ETHERNET CARDS *(for models without Personal Comms Solution)*... Thin Co-Ax (direct fit) £59 UTP (direct fit) £59 AUI (requires adaptor) £59

VIDEO OPTIONS: Video-In Card - £89 Video-Out Card - £219 Video-In/TV Tuner Card - £219

MPEG FMV Video CD Playback Card *(only fits 630 models without a DOS Card)* £175

D2 FM RADIO TUNER Only... £59 **SIMM/DIMM RAM Upgrades** £CALL

NEW APPLE INTERNET CONNECTION KIT - £47 NEW

POWERBOOK

190/66, 4/500 FROM... **£789** JUST £6.25 PER WEEK

PRICE CRASH! Limited Stocks Only!

190/66 4/500 Mono £789
190/66 8/500 Mono £929
190cs/66 4/500 Dual Scan £1049
190cs/66 8/500 Dual Scan £1229
5300/100 8/500 Mono £1429
5300cs/100 8/500 Dual Scan £1799
5300cs/100 16/750 Dual Scan £2249
5300c/100 8/500 AM £2379
5300c/100 16/750 AM £2899
5300ce/117 32/1100 AM £3999
DUO 2300c/100 8/750 AM £2369
DUO 2300c/100EM 20/1100 AM £3079

PCMCIA expansion bay - NEW 190/5300 models

Our PowerBook 190, 2300 & 5300s include: • Route 66 • Mobility Pack • 2 Games PowerBook 190s also include... • Claris Works

AM=Active Matrix Display

POWERBOOK OPTIONS...

PowerBook 190/5300 8Mb Upgrade £115
PowerBook 190/5300 16Mb Upgrade £221
PowerBook 190/5300 Battery (NiMH) £119
PowerBook 190/5300 Carry Cases from... £20

PERFORMA 5300/5320

FREE DK SAMPLER

5300, 8/1200, CD FROM... **£1019** JUST £8.07 PER WEEK

	RAM	HD		MONITOR	CD	TV	K/B	Price
5300	8Mb	1.2Gb	✔14.4	15" Int. FST	✔	✘	✘	£1019
	8Mb	1.2Gb	✔14.4	15" Int. FST	✔	✘	✔	£1099
	16Mb	1.2Gb	✘	15" Int/MPEG	✔	✔	✔	£CALL
	16Mb	1.2Gb	✔14.4	15" Int/MPEG	✔	✔	✔	£1349
5320	8Mb	1.2Gb	✔14.4	15" Int. FST	✔	✘	✔	£1329
	16Mb	1.2Gb	✔28.8	15" Int/MPEG	✔	✔	✔	£1749

PRICE CRASH!

NEW... PERFORMA 5260

£1099 JUST £8.71/Week

• 100MHz Power PC 603e and 16K Cache • 12Mb RAM/800Mb Hard Drive • Keyboard • Quad Speed CD • 14" Built-in Monitor • System 7.5.3 • Claris Works software

PERFORMA 6320

FREE DK SAMPLER

6320, 8/1200, CD FROM... **£859** PRICE CRASH

• 120MHz Power PC!!! • Monitor options up to 21" *(may require an optional video card)* • Quad speed CD Drive

	RAM	HD	MONITOR	CD	TV	K/B	Price
6320	8Mb	1.2 Gb	✘	✔	✘	✘	£859
	8Mb	1.2 Gb	14" M/S	✔	✘	✔	£1159
	8Mb	1.2 Gb	15" M/S	✔	✘	✔	£1209

POWERMACS

FREE DK SAMPLER

7200/75, 8/500 FROM... **£869** £6.88 PER WEEK

• PCI Technology • RISC CPU • NOW up to 150MHz!

7600, 8200, 8500 & 9500 MODELS. Call GH for the BEST PRICES!!!

MODEL	MHz	RAM	HD	CD	Price	
7200/75	75	8Mb	500Mb	✘	£869	WHILE STOCKS LAST!
7200/90	90	8Mb	500Mb	✔	£1079	WHILE STOCKS LAST!
7200/90	90	16Mb	1Gb	✔	£1329	
7500/100	100	8Mb	500Mb	✔	£1329	PRICE CRASH!
7500/100	100	16Mb	1Gb	✔	£1549	
7600/120	120	16Mb	1.2Gb	✔	£2249	
8200/100	100	8Mb	1.2Gb	✔	£1249	NEW LOWER PRICE!
8200/120	120	16Mb	1.2Gb	✔	£1599	NEW LOWER PRICE!
8500/120	120	16Mb	2Gb	✔	£2849	
8500/150	150	16Mb	2Gb	✔	£3199	
9500/132	132	16Mb	2Gb	✔	£2699	
9500/132GR - with Apple Graphics Card						
	132	16Mb	2Gb	✔	£2799	
9500/150GR - with Apple Graphics Card						
	150	32Mb	2Gb	✔	£3599	

CALL GH... ASK ABOUT THE CONFIGURATION OF POWERMAC THAT SUITS YOUR NEEDS!!!

POWERMAC OPTIONS

Add extra Power to your PowerMac...

256k Cache DIMM for 7500/8500/9500	£76
512k Cache DIMM for 7500/8500/9500	£97
Apple RISC 604, 120MHz Upgrade for 7500/7600/8500	£425
Apple RISC 604, 132MHz Upgrade for 7500/7600/8500	£638
Apple 486, 66MHz DOS Card	£169
Apple 586, 100MHz, 8Mb DOS Card	£699
Apple Pentium 100MHz, 8Mb DOS Card	£849

POWERBOOK Special OFFER

WHILE STOCKS LAST... YOU CAN CHOOSE A FREE GIFT FROM GH WHEN YOU BUY ANY OF OUR COLOUR POWERBOOK 5300s Worth up to £269+VAT!!!

GH LIMITED OFFER WITH ANY COLOUR POWERBOOK 5300 - Choose either a...

- **FREE 28.8 PCMCIA CARD TDK MODEM OR** a...
- **FREE STYLEWRITER 2200 Colour Printer**

Creditcharge — If you can't visit us personally, why not ask for an Application Pack for a convenient, flexible GH BUDGET ACCOUNT CARD. No deposit and repayments over convenient periods can be arranged by mail. Once established, you can purchase with your new card and leave existing credit card limits intact.

We supply all Government and Education departments along with Major PLCs. Call GH now for a rapid response to your Quotation requests!

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PHONE GH... We welcome all major credit/debit cards with NO TRANSACTION SURCHARGES.

POST OR FAX... Please include your Name, Address and preferably daytime and/or evening telephone/fax number with your requirements. If using a debit/credit card include its number and valid from/expiry date (and issue number with Switch cards). Make cheques (please allow 7 days clearance), Drafts or P.O.s payable to Gordon Harwood Computers Limited.

GH PRICES... All UK and EC customers please add VAT at the standard rate of 17.5% to all prices. UK overseas Armed Forces Personnel may be exempt VAT - please ask for details.

DELIVERY... We offer prompt shipment with fully insured express delivery options throughout the UK, Europe and Worldwide at a very modest cost. If ordering by mail, please call to confirm delivery charges.

GH WARRANTY... Manufacturers' standard warranties apply or, ask about GH's comprehensive extended options which are always recommended for professional users to minimise costly down time - full details available on request.

GH PERSONAL FINANCE5 FACILITIES - INCLUDING AN OPTION WITH NOTHING TO PAY UNTIL 1997✦

✦ PERSONAL FINANCE - DEFERRED PAYMENT PLAN ✦ :FOR INDIVIDUALS VISITING OUR SHOWROOM PAYING A MINIMUM OF 10% DEPOSIT

♥**OPTION 1:** BALANCES OVER £2000 - PAY NOTHING MORE FOR 6 MONTHS (1997) **OR,** ♥**OPTION 2:** BALANCES OVER £1200 - PAY NOTHING MORE FOR 4 MONTHS **OR,** †**OPTION 3:** ON UNLIMITED BALANCES OVER £500 - CHOOSE OUR 'LOWER COST' FIXED TERM PERSONAL LOAN, 24.9% APR OVER 2 YRS, OR 21.9% APR OVER 3 YRS

♥OPTIONS 1 & 2 - *During the deferred period you can settle IN FULL (without finance charges) or continue your agreement with normal interest arrangements (ie. Direct Debit 27.8% APR, 2.07% Month - Payment Book 32.4% APR, 2.37% Month). And... for the first 6 or 4 months you'll also receive FREE Agreement Life Cover*

†OPTION 3 - *a Low Cost alternative 2 or 3 year agreement, for those who wish to spread the cost of their purchase over a longer period than 4 or 6 months.*

Written details available on request. $Subject to status and an £18 arrangement fee. Please contact us prior to visiting for Easy Application requirements.

GH BUSINESS FINANCE FACILITIES...

BUSINESS FINANCE : Weekly rates shown exclude VAT and are based on a fixed cost 3 Year Apple Commercial Credit Lease payable quarterly after an initial deposit payment. Available to all businesses (including recently established) making a minimum total purchase from GH of £750 - subject to status. FULL Details available on request.

Manufacturers' specifications and GH prices are correct at time of going to press; however, they may fluctuate and we therefore reserve the right to amend them - please confirm prices before ordering. This advertisement is an invitation to treat, not an offer to sell. Goods are not supplied on a trial basis. All transactions are subject to Harwood's Terms and Conditions of Sale, a copy of which is available on request. E.&O.E.

MONITORS

GH Budget 14" Multisync Monitor inc. Adap. (.28)	£189
GH 15" Multisync Monitor inc. Adap. (.28)	£239
Apple 14" MultiScan (.28)	£225
Apple 15" Multiscan (.28)	£285
Apple 17" 1705 MultiScan (.28)	£514
Apple 17" 1710 Trinitron MultiScan (.26)	£659
Apple 17" Trinitron 1710AV MultiScan (.26)	£739
Apple 20" Trinitron MultiScan II (.26)	£1249
NEW NEC 15" CromaClear Multisync (.25) inc. Adap.	£399
Sony 15" SX1 Trinitron Multisync (.26) inc. Adap.	£299
Sony 15" SF2 Trinitron Multisync (.26) inc. Adap.	£339
Sony 17" SF2 Trinitron Multisync (.26) inc. Adap.	£549
Sony 17" SE2 Trinitron Multisync (.26) inc. Adap.	£779
Sony 20" SF2 Trinitron Multisync (.26) inc. Adap.	£1149
Formac 17" Trinitron Multisync (.26)	£469
Formac 17" Trinitron Multisync - HiSpec (.26)	£539

GH Prices INCLUDE Adaptors for GH, NEC, Sony & Formac!

DISPLAY UPGRADES

24-BIT Accelerated Graphics Card for £329
PDS Macs... For LCIII/I475/630/5200/5300/6200/6300
(Allows 1152 x 870 resolution on 21" Monitors at 8 Bit, or 832 x 624 on 17" Monitors at 24 Bit. Plus 4096 x 1536 Virtual Desktop)

External Monitor Connection - 5200/5300 £29

Ask us about VRAM (Video RAM) for your Mac...
to give your monitor higher resolutions, more colours etc.

KEYBOARDS

Third Party Design Keyboard	£40
Apple Design Keyboard	£76
Apple Extended Keyboard	£135
Apple Adjustable Keyboard	£160

PRINTERS

LASERS

Apple Personal Laser 300 - 300dpi Mono	£415
Apple Laser 4/600PS - 600 dpi Mono	£589
Apple Laser 16/600 - 600 dpi Mono	£1399
Apple LaserWriter 12/640PS New 600dpi Mono Laser	£1099
Apple Color LaserWriter 12/600PS 600 dpi Colour and Mono	£3999

INKJETS

Apple StyleWriter 1200 Mono 720 x 360dpi	£95
Apple StyleWriter 1500 Colour 720 x 360dpi	£219
Apple StyleWriter 2200 Colour 720 x 360dpi	£269
Apple StyleWriter 2500 Colour 720 x 360dpi	£289
NEW Apple StyleWriter EtherTalk Kit	£145
Epson Stylus Colour II 720 x 720dpi	£CALL
Epson Stylus Colour 500 720 x 720dpi	£239
Epson Stylus Pro XL Colour - A4 720 x 720dpi	£359
Epson Stylus Pro XL+ Colour - A3 720 x 720dpi	£849
Epson Stylus Pro POSTSCRIPT RIP	£179
HP 600 DeskWriter Mono 600 x 300dpi	£149
HP 660C DeskWriter Colour 600 x 300dpi	£229
HP 850C DeskWriter Colour 600 x 600dpi	£329
NEW Tektronix Phaser 140 A4 Colour, Postscript, 8Mb	£999

HP PRICE CRASH!

PowerPrint Use parallel printers with Macs	£79
StyleScript Adobe PS RIP for Apple Colour SWs	£75

PRINTER CONSUMABLES

StyleWriter... I/II Portable/1200/1500...		
	Black Cartridge	£15
StyleWriter 1500	Colour Cartridge	£23
StyleWriter 2400/2500	Black Cartridge	£26
	Colour Cartridge	£34
	Black Ink Tank	£7
	Colour Tank	£13
Colour StyleWriter Pro	Black Hi-Capacity Cartridge	£9
	C, M, or Y Cartridge (ea.)	£8ea.
	CMYK - 4 Colour Set Cart.	£30
Epson Stylus	Black Cartridge	£11
	Colour Cartridge	£24
Epson Stylus II	Black Cartridge	£15
	Colour Cartridge	£22
Epson Stylus A4 Paper	360dpi Paper, 100 Sheets	£12
	720dpi Paper, 100 Sheets	£16
HP 340 DeskWriter	Black Cartridge	£18
HP 600/660 DeskWriter	Black Cartridge	£18
	Colour Cartridge	£20
Genuine Apple Toner Cartridges...		
For Apple LaserWriter 300, 320, 4/600		£49
For Apple LaserWriter 360		£81
For Apple LaserWriter 16/600		£90
Toner Cartridges - For MOST other Lasers stocked Too...		£Call

CD ROM DRIVES

FREE DK SAMPLER WITH ANY CD DRIVE

D2 CD 600e Quad Speed inc. Cables	£164
NEW D2 CD 600e Eight Speed inc. Cables	£349
Apple CD 600e Plus Quad Speed	£219
Apple CD 600i Plus Internal Quad Speed *(Requires fitting kit - please call for details/price)*	£189

SCANNERS

Apple Color One 600-27 Scanner £399

UMAX

Model	Photoshop	Transp. Adap.	Price	
VISTA S6e	✘	✘	£249	
VISTA S6e	LE	✘	£269	PRICE CRASH!
NEW VISTA S6e	FULL	✔	£699	PRICE CRASH!
VISTA S12	✘	✘	£499	
VISTA S12	LE	✘	£525	PRICE CRASH!
VISTA S12	FULL	✘	£649	
VISTA S12	FULL	✔	£949	PRICE CRASH!
GEMINI	LE	✘	£759	PRICE CRASH!
GEMINI	FULL	✘	£859	PRICE CRASH!
GEMINI	FULL	✔	£1195	
NEW POWERLOOK II	✘	✔	£1499	PRICE CRASH!
POWERLOOK II	FULL	✔	£1599	
POWERLOOK 2000 with BINUSCAN	FULL	✔	£3295	
MIRAGE A3	FULL	✔	£5995	

Transparency Adaptors *(Quote model on order)*	£399
TextBridge bought with any Umax scanner	£39

EPSON

Model	Photoshop	Textbridge OCR	Price
GT 5000	LE	✔	£325
GT 8500	LE	✔	£495
GT 8500	FULL	✘	£669
GT 9000	LE	✔	£589
GT 9000	FULL	✘	£779

Transparency Adaptor... *(Quote scanner model with order)* £399
FOR 6000, 6500, 8000, 8500 and 9000 models

PAPERPORT

Visioneer Paperport VX for Mac *(Both come with WordScan OCR Software)*	£239
SCSI Adaptor for Paperport VX	£49
4 Port Juggler for Paperport/Modems	£89

CAMERAS

Casio QV-10 Digital Camera	£329
Apple QuickTake 150 inc. Mac/PC Kit	£419
QuickTake Carry Case	£40
QuickTake 100 to 150 Upgrade Lens	£13
Connectix QuickCam	£79
Connectix VideoPhone	£109
Connectix VideoPhone Software	£45
QuickCam Colour	£159

WACOM TABLETS

Artpad II... £119 Artpad II with Dabbler... £150
Ultra Pad... A5 - £255, A4 - £355, A3 - £555

STORAGE

INTERNAL HARD DRIVE	
D2, 1.2Gb	£229
D2, 2.1Gb	£479
D2, 4.0Gb (Atlas AV)	£849
EXTERNAL HARD DRIVE	
D2, 1.2Gb	£279
D2, 2.1Gb	£529
IOMEGA 100Mb ZIP Drive - inc. Cartridge	£139
ZIP Drive 100Mb Cartridge	£12
Formac 200Mb Syquest Drive - inc. Cartridge	£299
Formac 270Mb Syquest Drive - inc. Cartridge	£349
Formac 230Mb Optical Drive - inc. Cartridge	£CALL
NEW SONY 2.6Gb Optical Drive - inc. Cartridge & Cable	£1649
D2 200Mb Syquest Drive - inc. Cartridge	£319
D2 270Mb Syquest Drive - inc. Cartridge	£379
D2 230Mb Optical Drive - inc. Cartridge	£CALL
D2 EZ135 135Mb Syquest Drive - inc. Cartridge	£99
D2 EZ135 135Mb Cartridge	£14
IOMEGA 1Gb. JAZZ Drive	£399
IOMEGA 1Gb. JAZZ Cartridge	£75
SYQUEST CARTRIDGES...	
44Mb Capacity Cartridge	£25
88Mb Capacity Cartridge	£26
200Mb Capacity Cartridge	£49
270Mb Capacity Cartridge	£45
230Mb OPTICAL DISKS	£20
SONY CD WRITER Double Speed - Write, Quad Speed Read including Toast or Gear Software	£599
YAMAHA CD WRITER Quad Speed - Write, Quad Speed Read including Toast or Gear Software	£849
PINNACLE RCD 5040 CD WRITER inc. Software	£649

COMMS

NEW Apple GeoPort for AV/Power Macs - 14.4	£94
Apple Personal COMMs Solution - 14.4 £109 28.8	£179
(For 630/5200/5260/5300/5320/6200/6300/6320, see 'Performa Options' below left)	
Motorola 3400 Pro V34 - 28.8	£125
Lasat Safire - 28.8	£139
US Robotics Sportster 288 V34 - 28.8	£149
Global Village TelePort Gold II - 14.4 BABT	£59
Global Village TelePort Platinum - 28.8 BABT	£159
Global Village PowerPort Gold PCMCIA PCMCIA 14.4 BABT	£199
Global Village PowerPort Platinum PCMCIA PCMCIA 28.8 BABT	£239
Psion Dacom Gold Card - PCMCIA	£219
FAX Friend- Auto switch between FAX/Voice calls	£49

FREE INTERNET access software via Compuserve with ALL Modems!

RAM UPGRADES

SIMMs... 4Mb, 8Mb,16Mb, 32Mb £CALL
DIMMs... 4/8/16/32Mb or 64Mb £CALL
Memory Prices Fluctuate Daily, Call GH FIRST!!!

SOFTWARE

NEW Corel Draw Suite *(Corel Draw + Word Perfect)*	£279	Complete After Dark CD	£34
		Apple PC Exchange	£39
NEW Corel Draw Suite UPGRADE	£99	Apple Personal Diagnostics	£68
Quark Xpress 3.3	£649	Apple System 7.5 - CD/3.5"	£59
Adobe Illustrator 6	£279	Norton Utilities 3.2	£74
Adobe Photoshop 3.0	£399	SoftWindows 3.0 - CD/3.5"	£209
Adobe Collection	£549	SoftWindows '95 - CD	£249
KAI's Power Tools 3.0	£95	Conflict Catcher	£52
KPT Vector Effects	£95	VIREX - Anti Virus	£59
KPT Power Photos 1, 2 or 3	£95ea.	SAM	£54
KPT Convolver	£95	SAM (Inc. Updates for 1Year)	£109
KPT Bryce II	£139	RAM Doubler	£38
Freehand 5.5	£319	Speed Doubler	£38
Fontographer	£290	RAM & Speed Doubler Pack	£54
Claris Works 4	£94	NOW Upto Date & Contact	£55
Claris Works to MS Office u/g	£179	Stuffit Deluxe 4.0	£66
Claris E'Mailer	£42	DOS Mounter	£52
Claris Draw	£95	DiskGuard	£66
Claris Impact	£95	Master Juggler Pro	£49
Filemaker Pro 3	£159	Hypercard 2.3.1	£94
Microsoft Office 4.2	£359	Let's Keep It Simple - S/Sheet	£98
Microsoft Word 6.0	£245	Maths Workshop	£28
Microsoft Excel 6.0	£245	Creative Writer & Fine Artist	£39
M.Y.O.B. Accounts	£149	Encarta '96	£39
MacMoney	£62	Groliers Ency. Science Fiction	£30

FREE DK SAMPLER

FREE DK SAMPLER

FREE TRIAL CD FULL OF DK's AMAZING SOFTWARE...
FREE FROM GH with ANY Mac/CD Drive configuration or with any add on CD Drive
Look for the Logo on this ad!

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Apple Design Speakers II	£49
Apple Desktop II Ergonomic Mouse	£35
Kensington Turbo Mouse V4	£51
Kensington Thinking Mouse	£51
MacAlly Mouse	£17
MacAlly Joystick	£32
MacAlly Game Pad	£22
Jet Stick	£38
Flight Stick Pro	£68
APPLE 1 YEAR ON-SITE MAINTENANCE	£15

NEWTON

GH HAVE BEEN APPOINTED AN OFFICIAL "NEWTON CENTRE"
CALL THE EXPERTS FOR ANYTHING NEWTON!

NEWTON 120 MkII - 2Mb + Software Pack £409	
NEWTON 130 MkII	£499
NEWTON GSM BUNDLE	£949

NEWTON ACCESSORIES

External FAX/Modem	£84	FOR 100 Model...	
Print Pack	£39	Carrycase	£14
Keyboard	£65	Leather Carrycase	£25
AC Adaptor	£19	Battery Pack Recharger	£33
Car Adaptor	£23	Battery Booster	£12
1Mb Storage Card	£55	FOR 110/120/130 Models...	
2Mb Storage Card	£105	Leather Carrycase	£38
4Mb Storage Card	£185	Mains Recharger Cradle	£49
Connection Kit - Mac	£45	Nicad Battery Pack	£15
Connection Kit - Windows	£45	Stylus	£8

NEWTON SOFTWARE

PowerForms	£74	Time Reporter	£69
GoFigure	£24	Quick Figure Pro	£43
Berlitz 5 Language (PCMCIA)	£70	AvailWorks	£60
		CIS Retriever	£93
Jig Saw Strategy Game	£16	First Class Retriever	£79
Equate	£61	NS Basic	£79
Press for Mac	£52	Now Synchronise	£22
Notion (The List Manager)	£32	Please call GH for LOTS	
TapWorks	£55	MORE NEWTON	
PocketCall	£71	ACCESSORIES	
Accountable	£48	AND NEWTON	
Leverage 2.0	£88	SOFTWARE!	
Action Names/Agenda 3.0	£35		

GH is a family business established in 1955. We've been supplying systems since 1982 and now with over £40 million worth of units sold, and a quarter of a million happy customers... Our Trading Record is Second to None!

We think we offer the BEST overall deal possible and you can rest assured that as an Apple Authorised Reseller, Apple Authorised Service Provider, Apple Authorised Higher and Further Education Alliance Reseller, Apple Commercial Credit Provider and Apple Newton Centre... we can offer you everything!

TRY US NOW! - *Giles Harwood*

CONFIGURATION and TESTING SERVICE... *available for Hardware, Peripherals and Software. Please ask for details!*

Authorised Reseller

Appointed for high standards in Apple Hardware Maintenance & Care

- Apple Authorised Reseller
- Apple Authorised Service Provider
- Apple Authorised Higher and Further Education Alliance Reseller
- Apple Commercial Credit Provider
- Apple Newton Centre

Whilst our standard warranty cover is comprehensive, we also offer enhanced and extended warranties too. If your Mac is an essential part of your business, you may require a fast collection or on-site response service for minimal down time. Ask for details and choose the option that suits your needs best. Our 'Gold Service' is priced from as little as £10!

Lifetime Warranty Plan *for equipment used at Home (ie not on commercial premises)...Add an extended warranty to any hardware from GH. Take up to 5 yrs cover and at the end of that period extend again on an annual basis, you get a lifetime's peace of mind. Schemes even cover for accidental damage as well as break down. Fully transferable should you wish to sell your equipment so enhancing resale values. Even available on certain hardware purchased elsewhere. Phone GH for details.*

Equipment under Apple warranty, *can be collected for service... even if it was purchased elsewhere! We are also happy to quote for out of warranty hardware repairs and service, no matter how old the product may be. Call GH for details.*

VISIT OUR SHOWROOM...

We are often told our showroom is the best in the UK. So why not visit us in scenic Derbyshire and see for yourself the vast range we have on display, all at mail order prices, off the shelf!

WHY NOT MAKE A DAY OUT?

FREE TOURIST i

Ask for our Tourist Information Leaflet which covers the many local natural and special attractions, from quiet country walks to historic sites and exciting modern theme parks.

IT'S ONLY A SHORT DRIVE... EVEN FROM LONDON

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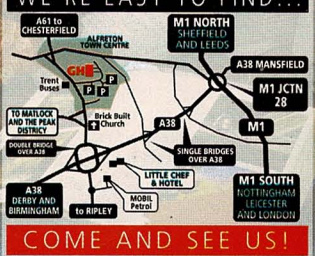

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ALL PRICES EXCLUDE VAT
and are shown for businesses only. Consumers - please ask for an Inc. VAT Price List.

All GH Printers, Monitors, Scanners and Storage Devices are supplied with Standard Desktop Mac Cables FREE!
(PowerBook users - ask for cable details/prices)

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Phone Gordon Harwood Computers

01 773 836781

Dept. MAF/T16, New Street, Alfreton, Derbyshire. DE55 7BP FAX: 01 773 831040

GH SOFTWARE SAVERS

Broderbund

SAVER 1

MYST

Surrealistic multimedia game that's a real adventure classic! Unravel a chilling tale of intrigue and injustice that defies all boundaries of time and space. Few are chosen. Fewer succeed. Journey now to an island world tinged with mystery... where every vibrant rock, scrap of paper and sound may hold vital clues!

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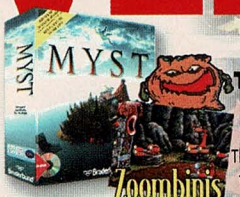
(Requires: Macintosh with, 256 Colours, 4Mb RAM, System 7.1 or later, CD ROM Drive)



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Flurry of new Macs at Expo; Amelio promises to reward Mac loyalty; OpenDoc flourishes. News Editor: Richard Hill.

Competition heats up at Expo '96

EXPO BOSTON '96

The old confidence is back. Putting behind itself a year of trauma and soul-searching, which included the departure of many key staff and consistent rumours of take-overs by just about everyone, Apple led the way with fresh ideas and new products at the most important Mac show of the year.

The 90-degree heat of Boston, on the east coast of the United States, played host to this summer's Macworld Expo, with an estimated record 65,000 people seeing the latest Mac hardware and software over four days in early August. The top attraction was clearly the swathe of new Macs and Mac-compatible computers from Apple and other firms like Power Computing and Umax. You can find full details of the most powerful Macs yet in our giant cover feature starting on page 34. Highlights included an exciting new Performa range, with machines and software packs tailor-made for different types of user. The Apple Creative Studio, for example, offers simple video editing facilities and superb graphics software like *Kai's Power Goo* and *Adobe PhotoDeluxe*, all for under £2,700.

Power in Europe

Power Computing, the first firm to license the Mac OS (operating system) to use on its own computers, showed off a range that was nearly completely new, filling out its selection to offer something for everyone. The PowerTower Pro range includes the fastest single-processor Mac released so far, while the PowerBase computers are low-cost machines for the home, school or office.

Power also unveiled plans to expand its UK and European presence, seeking out offices and manufacturing facilities this side of the Atlantic. Power Computing Europe will follow the example of its parent company and offer you the chance to buy custom-made Mac computers with the features, RAM and hard drive space you request. It will be taking direct telephone orders as well as selling through top mail order outlets. Power expects to announce its plans in more detail when it makes a splash at Apple Expo, the Mac show to be held in London this November.

The race is on: the biggest round of Mac-compatible computer releases saw an emphasis on the power and speed you get from different models.

The Family Macintosh is one of a new range of Performas tailor-made for different types of user.

More more more

Power Computing personified a growing trend among firms to focus on technical achievements like faster main processors in their computers. Frank Casanova of Apple's Research Laboratories demonstrated the fastest Mac chip around at the moment – a 604e processor running at 250MHz. 'IBM and Motorola [the makers of the PowerPC chip] are pounding the streets with 300MHz processors', he said. It's certain that we're entering a period of fast-changing hardware, with the rate of change getting much faster over the next 12 months.

Motorola was also at the show to demonstrate its own Mac-compatibles, although there was no indication of when the computers would go on sale. The only official comment was that putting Motorola Mac OS systems on sale before the end of the year was 'under active consideration.'

Motorola also brought some PowerPC Platform machines to show behind the scenes. These are the models that will run other operating systems apart from the Mac OS; the prevailing opinion from firms like Apple and Motorola is that these are unlikely to appear this year.

EXPO FACTOID

Number of visitors to this year's Boston Expo: 65,000. Visitors at Boston last year: 62,000.

Continued on next page

Amelio: 'You'll be glad you chose Apple'

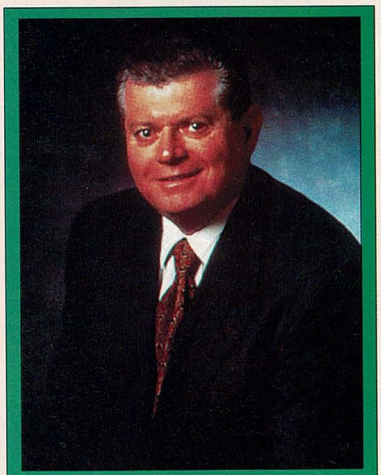
EXPO APPLE

Apple Chief Executive Officer Gil Amelio kicked off the Mac Expo in Boston with a speech that restated the values he wants to instill into the firm and hinted at new directions to come. Referring to Apple's recent financial troubles, he said: 'We're moving from a dialogue centred on survival to a dialogue that's going to be centred on excitement.'

Amelio laid out what he called 'a contract with you' to offer value for money, innovation and professional management. 'Frankly, we're just too big to shoot from the hip any more,' he commented.

Amelio stressed that Apple is continuing to simplify hardware and software. There will be fewer core Mac designs – although this is not the same thing as having fewer Macs to choose from, he added. Future Macs from Apple will offer more variety by adding extra software and changing the way they look. The movement towards building-in more memory and Internet features will continue.

Work towards completing Mac OS 8 continues, said Amelio, comparing the size and complexity of a modern operating system to that of the phone network management system for the whole United States. Sooner or later, he said, 'you reach a level of complexity where it's unsustainable.' So the Mac OS will be broken into smaller chunks to make it easier to modify. A new version of the Mac OS in January will offer some of the features earmarked for Mac OS 8, and will be followed by a series of releases that will give you more Mac OS 8 features sooner, rather than your having to wait for the whole project to be completed.



Gil Amelio's first Expo speech had visitors queueing up to get in. Hundreds were turned away.

Showing a number of new ideas for Mac design and for how the OS could work, Amelio and Apple research engineer Frank Casanova showed prototypes for projects including an animated version of QuickTime VR, Apple's virtual environment system that enables you to look around a setting in 360 degrees. Code designed to simulate common natural effects will mean that objects like waterfalls in an outdoor environment will move. The ideas were also extended to the Desktop: dropping in an image of a pool onto the Mac screen underneath the familiar icons and menu, Casanova then used the mouse to create ripples in the water which animated in real time. There was also a tantalising glimpse of a 3D interface where Finder windows have depth and can be turned on their sides. Spotlight beams came from a folder in one window to indicate which window represented that folder.

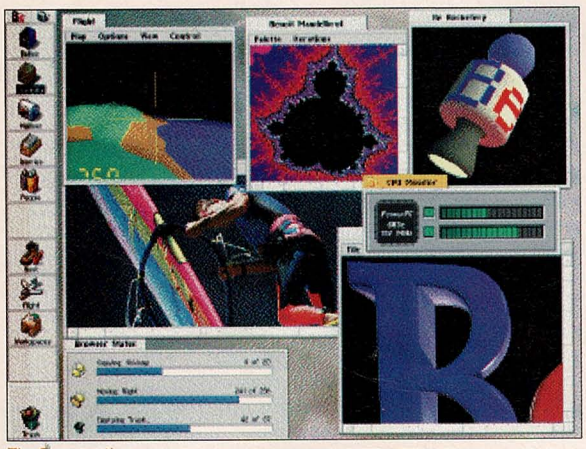
Announcing that Apple had now made 25 million Macs, Amelio presented the landmark Mac to a local school. (Mac number 25-million-and-one went to a member of the watching audience picked at random.) Elsewhere in the show, Apple held crowd-pleasing T-shirt giveaways and more prize draws for free Macs, with high-up figures like Apple deputy Marco Landi joining the fun.

Amelio ended by pointing to innovation and value as ways to repay supporters of the Mac for their loyalty. 'You have my promise to make you glad every day that you chose Apple.'

EXPO FACTOID

Number of letters received by Gil Amelio in his first six months: 10,000 ('And I've read 'em all,' he claims).

New OS for the Mac



The Be operating system promises to give you more multimedia power on your Mac.

EXPO FUTURES

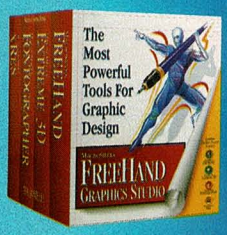
Next year you'll be able to use a powerful new operating system tailor-made for the speed of the PowerMac and the demands of modern multimedia and Internet use – but it isn't Mac OS 8. The BeOS is an alternative system that you can already use on the BeBox computer and is now coming to the PowerMac.

An operating system or OS is the layer between the computer itself and the programs you use every day for tasks like word processing or image manipulation, for example. The OS provides the framework for your programs to work within, so a good, fast OS should lead to better programs for you.

Designed for designers and creators of multimedia, the BeOS is intended to exploit the full ability of the PowerMac. Its multi-tasking features mean you can run several programs at once, enabling your Mac to render a time-consuming 3D graphic while you type a letter or browse the Web while you wait. The BeOS also supports the multiple processor Macs that will become increasingly common in the next year or so.

There are no actual programs yet announced for the BeOS, although the Be firm claims hundreds of companies are working on software. The idea of the BeOS is that software developers will find it easy to write programs which will operate at more efficient levels than on the Mac OS, giving you more power over your work.

The BeOS already works on the BeBox, a PowerPC-based dual-processor machine that sells for around $3,000 (£1,980). Programs written for the BeOS will work on both the BeBox and the PowerMac once the conversion of the OS is complete, although Mac software won't work on the BeBox. Expect to see more on the BeOS early next year.



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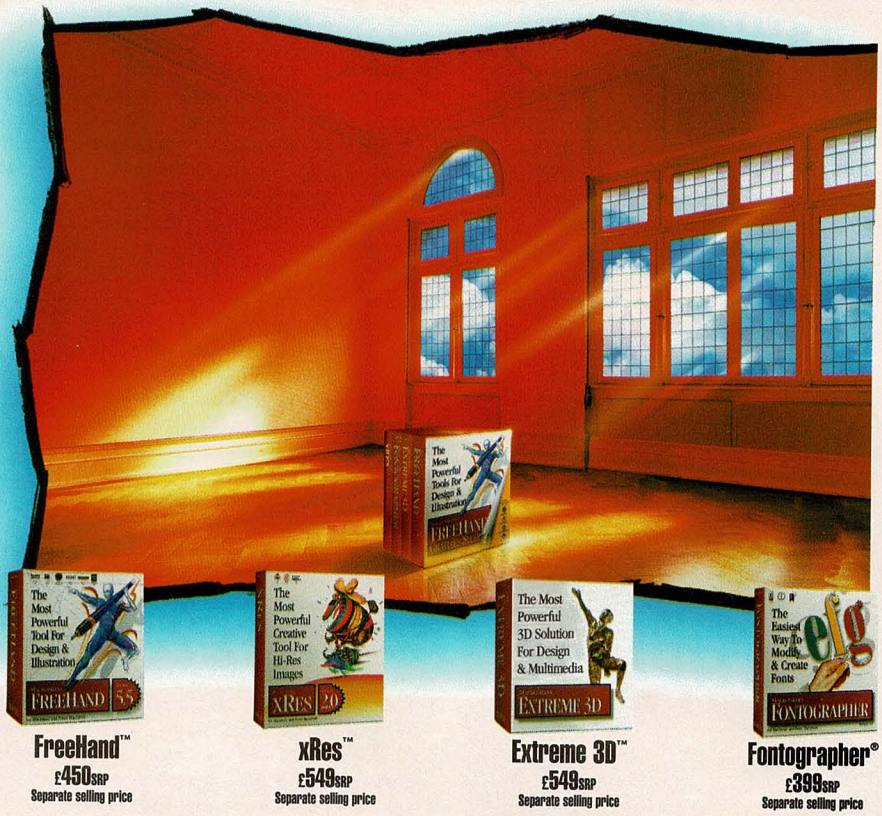
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Mac graphics value grows

EXPO GRAPHICS

Always one of the most exciting aspects of the Mac scene, graphics hardware and software at the show continued the trend towards low-cost but powerful programs. Together with the fast-improving PowerMacs, the new products give you superb control over your graphics work for less money than you'd think.

Just weeks after unveiling its exciting natural media drawing program *Expression* (What's New, MACFORMAT 41), Fractal Design again demanded attention with its 3D painting program ***Detailer.*** Closing the gap between 2D and 3D, *Detailer* enables you to add textures and effects to models created in 3D programs. You can import a 3D model into *Detailer,* then add colour, texture and highlighting with 'natural media' tools similar to the ones found in Fractal's *Painter.* You can work around the surface of the object rather than relying on making a texture simply wrap around a model, giving you an excellent level of accuracy. *Detailer* is out in September.

Overdrive gives you much of the power of *Live Picture* at a fraction of the price.

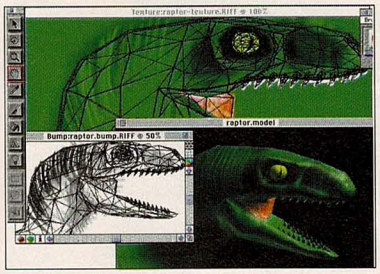
Long a doyen of the PC graphics scene, Corel set out to make a big impression on the Expo crowds with its official launch of ***CorelDraw*** for the Mac. *Draw* is a full suite of graphics programs, giving you features like painting, drawing, image manipulation, bar-charting and texture making. The *WordPerfect* word processor, newly revamped since coming under Corel's control, is also included.

After a lengthy gestation (we previewed it back in MACFORMAT 29!), Deneba's ***Canvas 5*** is ready to roll. It offers a complete range of features for technical illustrators and designers. *Canvas* adds page layout and type features to its image manipulation core, and includes thousands of clip art images, fonts and textures.

Microspot's bargain modelling program ***3D World*** moves up to version 2. Still using Apple's QuickDraw 3D system to making creating 3D shapes easy, 3D World 2 adds animation facilities that enable you to make QuickTime movies of your creation in full motion. Text handling enables you to convert a piece of text written in any font you have installed into a 3D object that can be stretched and twisted like any other model. *3D World* should be available in the UK by the end of September.

Live Picture's ***Overdrive*** brings you the image editing power of the firm's eponymous flagship program for less money. With a keen price of under $200 (£135), *Overdrive* is an image compositing tool you can use to manipulate huge files quickly. It's ideal for producing image files with several layers, so you can try out different compositions using several large elements. One for the professional designer, *Overdrive* requires a fast Mac with a hefty 18Mb of RAM.

PhotoMate comes from Connectix, the maker of the popular *RAM Doubler* utility. The program helps you take pictures (using a connection with the firm's own low-cost QuickCam video camera), then modify it with image editing tools before presenting it within a photo album or slideshow. If you're an absolute beginner with graphics, this $99 (£65) package could help you create effective images.



Fractal Design's *Detailer* enables you to add natural and convincing effects to your 3D models.

Kaetron's ***Stencil It*** is also for the graphically illiterate, giving you hundreds of stencil files you can use as a starting point to create any visual communication, from a poster to a technical flowchart. It includes *Web It,* which enables you instantly to transfer your work to the World Wide Web.

The Mac's future revealed

EXPO PREVIEW

Even as the fastest ever Macs are unveiled at the Expo, the expected route to the next generation of processors has been unveiled by IBM and Motorola. New processor series set to debut in 1997 and 1998 will give you Macs capable of running over ten times as quickly as the original PowerPC 601 chip found in the first PowerMacs.

The next major ramp-up in power will be a processor codenamed G3, due to appear in computers next year. Design modifications in the chip will mean it can run faster than today's processors at equivalent clock speeds (clock speeds dictate the number of basic instruction the processor can handle each second). And improvements in engineering will mean that G3 chips will ultimately run at faster than 400MHz. PowerPC engineers reckon the existing low-power chip the 603e won't be able to rise much above 300MHz.

The G3's big brother is the G4, expected to debut in 1998. Taking the limits of chip technology even further, IBM and Motorola anticipate clock speeds of over 500MHz for the G4. Both new chips will run existing PowerMac software.

The new chips are likely to appear first in the PowerPC Platform computer – the Apple, IBM and Motorola joint project for a multiple-OS computer. Prototypes were shown behind-the-scenes at the Expo, running both the Mac OS and Windows NT, a more sophisticated version of Windows 3.1. In use, you'll be able to switch between the two systems simply by restarting your machine.

Apple showed a PPCP machine running only the Mac OS. *ClarisWorks 4.0* ran smoothly on the new machine, working with the PPCP's PC-compatible keyboard, printer and modem sockets, which are alongside the standard Mac ports in the PPCP case. Apple's George Scalise said the slightly-modified PPCP version of the Mac OS would be ready early next year. He estimated that Apple would offer both conventional PowerMacs and PPCP computers until at least 1999, in the same way that it made both old-style 68K Macs and PowerMacs until this year.

OpenDoc promise confirmed

EXPO OPENDOC

The first real fruit of Apple's OpenDoc software system went on show at Expo. Established software giants and some brand new developers presented pieces of software that can cooperate with each other using an idea known as component software.

The actual software packages you buy to use in OpenDoc have been renamed 'Live Objects'. A Live Object can be placed within a document made by a 'container' program, sharing information with the host program or other Objects. Data displayed in one Object can also update automatically to reflect alterations you make elsewhere, in a manner analogous to data in relational databases. For example, a Live Object showing a bar graph of stock prices could change to show changes downloaded from the Internet by another linked Object.

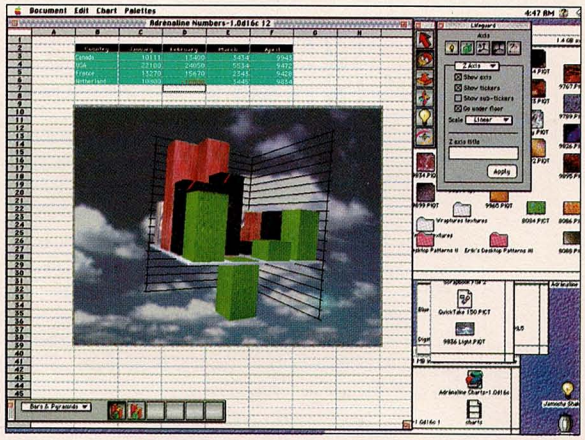
You'll be able to use OpenDoc Live Objects within many of your favourite programs: ***ClarisWorks 5.0*** and ***Nisus Writer 5.0,*** both due out before the end of the year, will be able to hold Objects. ***WordPerfect 3.6*** and ***WordWrite 3.5,*** a new version of the multilingual word processor, will also be able to contain Objects.

But the real heart of OpenDoc is the Objects themselves. **Adrénaline Software** showed a spreadsheet Object due early next year. You can drag-and-drop a file from leading spreadsheet *Excel 5* straight into your new document, then add in a bar chart Object. Linking the table of figures with the graph Object gives you instant results. You can then drag-and-drop texture files (such as the ones used in 3D programs) onto the graph, or grab hold of the chart and twist it around to view it from any angle. Changes to the table are automatically shown in the chart.

Wav takes full advantage of its OpenDoc-fostered ability to contain other Objects.

Due in October, Digital Harbor's ***Wav*** is a new-generation word processor specially tailored to work with Internet Objects like Apple's *Cyberdog,* which comes with the package. The combination enables you to drop articles and images from the Net directly into your word processor document. Drop in other Objects and see the text wrap around them automatically. Digital Harbor is cooperating with several other Live Object makers to ensure that their products work together seamlessly.

SoftLinc's ***Lexi*** is a powerful spell checker and thesaurus you can use within any other OpenDoc containers – not just word processors. You can drag-and-drop a section of text into *Lexi* and have it checked, then simply drop the corrected material back into any text editing Object.



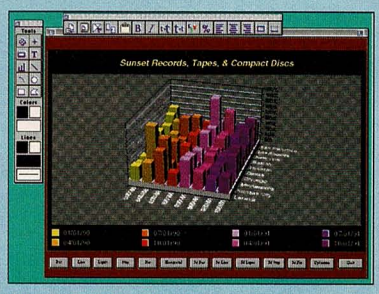
This spreadsheet suite from Adrénaline uses OpenDoc to give you maximum flexibility.

WATCH FOR FULL DETAILS OF ALL PRODUCTS IN MACFORMAT WHEN THEY ARE RELEASED

Also seen at Expo Boston '96

A show the size of Expo takes days to explore properly, but MACFORMAT has done the legwork for you. Here's a rundown of some of the other top products on display at the show:

- DayStar's **nPower 360+** card is a speed upgrade for your PCI PowerMac, giving it the power of multiple processors for a modest $1,500 (£990). You can replace the main chip in your 7500 or 8500, for example, with two mighty 604e processors running at 180MHz each.
- **PowerSource** is a range of cards to make your PCI PowerMac go faster. Maker PowerTools offers a trade-in of your existing processor card to give you two 200MHz 604e chips for $1,799 (£1,185). PowerTools also supplies a range of single-processor upgrades, like a 604 at 160MHz for $599 (£395).
- ATI's **Xclaim VR** is a bargain accelerator card for your PCI-equipped PowerMac. For $269 (£180), you get a card that boosts QuickDraw 3D, QuickTime video and the built-in QuickDraw graphics system your Mac uses constantly. You can also fit in an optional $99 (£65) TV tuner card.
- Epson's $289 (£190) **Stylus 500** is an inkjet colour printer that uses new software techniques to print in exceptionally sharp colour at 720 dots per inch. You also get copies of Adobe's *Home Publisher* and *PhotoDeluxe.*



Wingz enjoyed great success the first time round on the Mac – can lightning strike twice?

- Also from Epson, the **PhotoPC** is a sub-$500 (£330) digital camera that stores the pictures you take as industry-standard JPEG files. This means you can transfer files from the camera straight into your favourite graphics program or onto the World Wide Web without having to spend time converting them first.
- If you own a digital camera from the leading firms (Apple, Kodak, Epson and Casio), you can now get a selection of lens attachments to improve the range of shots you can take. The **Tiffen** camera accessories include photographer essentials like telephoto and close-up, along with tripods and a colour warming filter to guarantee great skin tones.
- Back after a long absence, ***Wingz*** is an easy-to-use spreadsheet and part of the unexpected Mac spreadsheet revival this year. It offers flexible options to create charts and graphs based on the tables of figures you've set up.
- Polaroid's **PhotoPad** is a compact device for the home, enabling you to scan in photos taken at 35mm size or, of course, with Polaroid's own instant cameras. Priced at $299, the PhotoPad can scan in full colour at up to 400 dots per inch.
- And continuing the revolution in low-cost storage devices, the **Olympus SYS.230 Universal** drive uses 230Mb magneto-optical cartridges that cost just $10 (£6.50) each. The drive itself costs $359 (£240).

EXPO FACTOID

Amount spent in Boston by Expo visitors: $60 million. (And $2 million of that was just for the MACFORMAT expense bill. The boss isn't reading this, is he?)

Internet stresses DIY

EXPO INTERNET

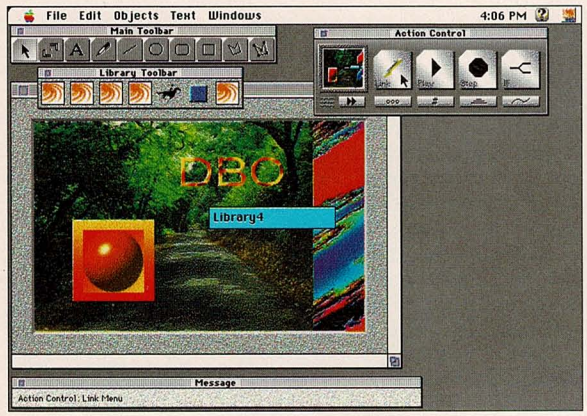
The Internet continues to expand and change more people's lives, and nowhere more so than in the United States, scene of the Expo. As proof, a system crash that cut users of America Online off from the Net for a day during the Expo made the front pages of the papers and featured prominently on TV news bulletins.

Reacting to such a high level of interest, software developers continue to come up with ideas to make the Net less of a mystery to the everyday computer user. Encouraging people to create their own Web pages, both ***Claris Home Page*** and Adobe's ***PageMill 2.0*** appeared at the show. Each program (the former is out now; the latter appears in September) enables you to lay out Web pages as though you were using a simple DTP program.

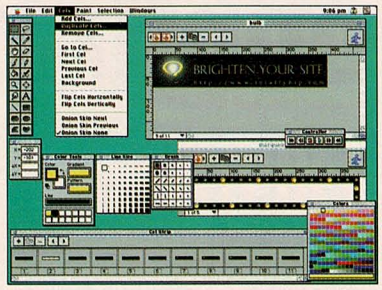
Myrmidon from small developer Terry Morse Software goes a step further, enabling you create Web pages within any of your favourite text-based programs. *Myrmidon* replaces the familiar Print box with one geared to convert text documents to the HTML code used to write Web pages. You can set the software up to convert type between certain sizes into one of the preset heading sizes found in HTML.

Totally Hip Software's ***Web Painter*** is a simple painting utility that helps you create animations to place on your Web page. Frame by frame, you can assemble sequences that you can convert into animated GIF files, QuickTime movies or Totally Hip's own *Sizzler* multimedia player system.

Lari Software is the firm that brought you *LightningDraw GX*, the first graphics program based on Apple's QuickDraw GX graphics and printing system. Now Lari's ***Electrifier*** enables you to view GX-based graphics and animations on the Web. The advantage of GX files is that they can pack a lot of information into a small file size, meaning they load more quickly. You can create the files using ***LightningDraw Electric,*** a free graphics program you can download from **http://www.electrifier.com/**



Harness the power of the Java language with new OpenDoc suite *Webburst*.



Design and animate banners for your Web page using the simple tools of *WebPainter*.

The Java programming language is fast becoming a major vehicle for creating compact, sophisticated multimedia and mini-programs to use over the Net – but if you're not a programmer, you'll find creating with Java difficult. PowerProduction's ***Webburst*** gives you simple tools and palettes that enable you to create Java-based programs more easily.

3D takes hold in Mac games

Journey into a dank dungeon and extract a Dark Vengeance in this 3D action game.

EXPO GAMES

Although it's chiefly a show aimed the serious enthusiast or business-person using a Mac, the Expo reflects the growing momentum behind the Mac games scene each time it's held, with the game booths drawing some of the biggest crowds.

Reality Bytes is the firm behind the excellent *Havoc* and *Sensory Overload,* and now introduces its most ambitious title yet – ***Dark Vengeance.*** The game is a 360-degree fantasy adventure challenging you to battle undead demons in the bowels of a dungeon. Up to 32 people can take part in a game of *Dark Vengeance* at once using the network option. There'll be a preview version of around five levels available before Christmas for less than $20, while the full version will add dozens of extra levels for under $50 when it arrives next year.

Bungie Software of course had one of the busiest booths at the show, not least because of the interest in its third (and probably final) *Marathon* game, ***Infinity.*** Due before the end of the year, *Infinity* follows the trademark *Marathon* style of intelligent puzzles linked with first-person shoot-'em-up action to finish the story of egomaniac computer Durandal.

Bungie is also moving into publishing titles developed outside the firm. ***Abuse*** is a sideways-view shoot-'em-up with 360-degree weapons firing, and you'll need every degree as you're attacked from all sides. ***Weekend Warrior*** plunges you into a 3D game show where you have to battle other contestants for big-value prizes. It's created by Pangea Software, the firm behind the *Gerbils* rollercoaster program you may have seen if you've seen a demonstration of QuickDraw 3D at a show.

From devastating carnage and mondo violence to bowling: ***Alley 19*** sports a retro 1950s feel to take you ten-pin bowling on your Mac. Use your mouse to control your bowling action to a rock 'n' roll soundtrack. Up to four people can play across a network. And there's more sporting action with ***The British Open,*** a super-real golf game with all the lively atmosphere of the famous tournament. It's from Looking Glass, the firm behind the gorgeous aviation sim *Flight Unlimited* and a developer of the famous *Links Pro* golf series.

Yet another example of *X-Files* fever? *Amber* beckons you into exploring the paranormal.

Amber: Journeys Beyond comes from Changeling Software, immersing you in a graphic paranormal adventure. As an investigator into the mysterious, you have to save Roxy, a colleague who's gone too far in her attempts to use technology to connect to other planes.

Your ideas Apple Expo shows you *powerful* ways to make them

dance

Pre-register for free entry – call **0181 390 0203** and quote reference A35

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Under 16's are admitted on Saturday only. The ruling is strictly a maximum of two children per accompanying adult.

Apple xpo 1996

6–9 November, Olympia London

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CODE: A35

WHAT'S NEW

A new desktop publishing package from the States arrives on the Mac, the joys of interactive virtual existence, a new LaserWriter and much more besides. Richard Hill and Garrick Webster report.

PageStream 3.1

The latest desktop publishing (DTP) package for the Mac has arrived, and it's called *PageStream 3.1*. What, you might ask, happened to *PageStream 1* and *2?* Well, in fact, the earlier versions of this respected DTP program were only ever developed for the Commodore Amiga and the Atari ST.

Now publisher SoftLogik hopes to bring its value-added software principles, which enabled *PageStream* to flourish on the Amiga and ST, successfully to the Mac.

The new *PageStream* promises to quickly become a viable option in the Mac DTP scene, placing itself in the middle ground between full-scale professional (and therefore expensive) programs like *QuarkXPress* and lower-cost word processors with added DTP features, like *ClarisWorks*.

With *PageStream* you can assemble pages ready for print, using typesetting, drawing and graphics tools. Like top-of-the-range DTP software, *PageStream* offers a master page facility for creating grid designs to repeat throughout a document.

You can also produce frames for text or images and use a full set of typographic instruments, including style sheets. Type adjustments, for example tracking, kerning and leading, are all accurate to 0.001points.

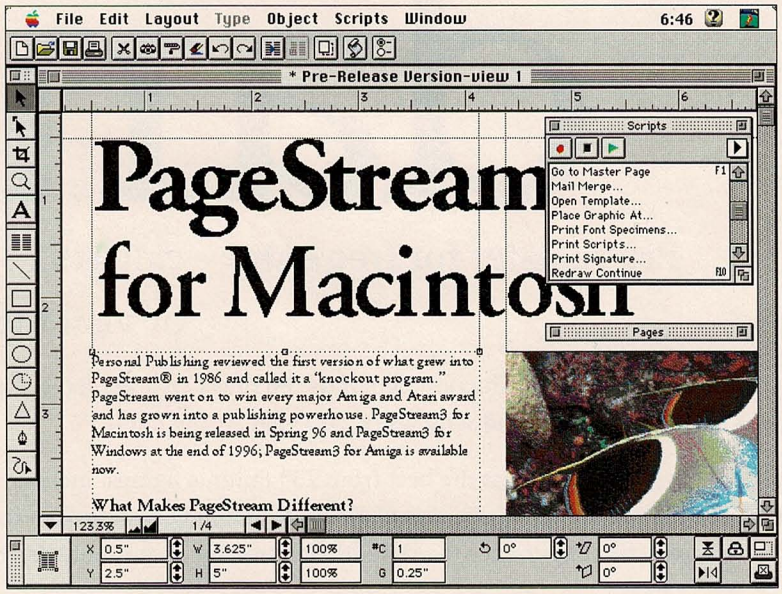
The program overtakes *PageMaker* by offering drawing tools for freehand sketching and creating polygons, along with gradient and special effect fills for boxes. You can change an irregularly-shaped polygon into a text box instantly, creating bizarre new text frame forms.

The program also boasts word processor features like automatic page numbering, and you can group pages together as chapters, making it clearer to work on complex documents.

There is support in *PageStream* for the AppleScript language, enabling you to automate repetitive, time-consuming layout tasks and set your Mac to take care of them for you. And as if all that weren't enough, there's also a free image processing program, *BME 3.0*, which will give you instant access to a range of essential image manipulation features, including the facility to convert files into several important formats.

SoftLogik is at present only selling *PageStream* through direct mail order from the United States, but if you're tempted by the features you could now pick up a bargain. The firm is currently offering the September release of *PageStream 3.1* at an introductory price of $210 (around £135), rather than the regular $595 (around £384). If this sounds too good to be true, get more details from SoftLogik in the US on 00 1 314 256 9595.

Price: $210. Out: September. Requires: LCII or better, 4Mb of free RAM, System 7.1 or later, 13-inch monitor, 6Mb of free hard disk space. (PowerMac with 8Mb of free RAM and System 7.5 or later recommended.)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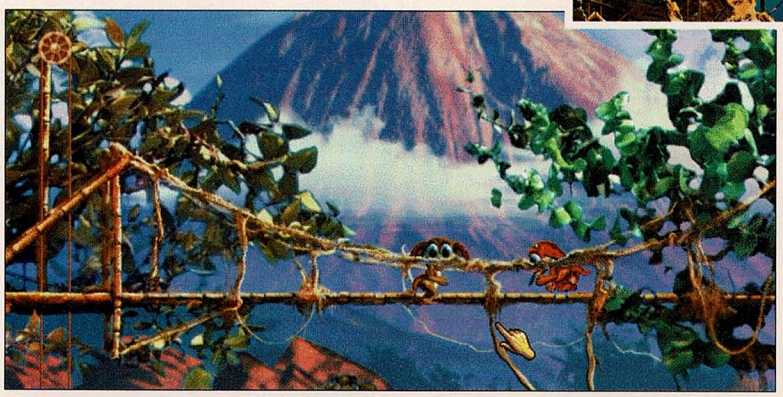
Pages
Personal Publishing reviewed the first version of what grew into PageStream® in 1986 and called it a "knockout program." PageStream went on to win every major Amiga and Atari award and has grown into a publishing powerhouse. PageStream3 for Macintosh is being released in Spring 96 and PageStream3 for Windows at the end of 1996; PageStream3 for Amiga is available now.
What Makes PageStream Different?

It was always a bargain on the older, slower Amiga; now *PageStream* takes the power of the Mac to offer pro-level desktop publishing features for the price of a package aimed at the home user.

NEXT ISSUE

Do you need a DTP package? Many word processors these days offer advanced document construction, typographic and even graphics functions – could they be all you need for your newsletter, poster or flier? Next issue we examine just how much you can do with today's WPs, and ask precisely what more the top DTP packages can do. Ask your newsagent to reserve you a copy!

Creatures



They may look and act cute, but these *Creatures* follow the code of a sophisticated artificial life program.

Desktop entertainment on the Mac comes in many forms. There are games, of course, and edutainment discs dealing with everything from comic books to opera. Millennium Interactive now hopes to add a new spin with *Creatures,* which has sparked interest among scientists. Neither a game nor edutainment, this artificial life program has you adopting and caring for some 15 evolutionary digital critters.

The norns, as they're called, will be every bit as cute, cuddly and squeaky as any pet. However, they are driven by one of the most complex artificial life systems available. Their behaviour will be governed by an intelligent neural network brain working in tandem with a simulated body containing some 250 genetically specified chemicals.

Using their neural net brains, each norn will be able to learn and remember. They can identify food, warmth and entertainment in their Desktop vivarium environment. Furthermore, you'll be able to teach them the names of objects. Tell one norn that a ball is a ball and it might even pass that knowledge on to its brothers and sisters.

The wide-eyed little creatures will each contain a virtual bloodstream. Low blood sugar levels will drive the norns to food, while endorphins remind them when they're having fun and hormones encourage your electronic pet to find a mate.

Fortunately, the procreative act is discreet, appearing on screen as nothing more than a sloppy kiss. The breeding of these complex artificial organisms is, however, proving an exciting prospect to scientists studying artificial life.

Why? Well, built into the reproductive process is the potential for gene duplication and mutation. Over generations the norns can even evolve. Users will be able to swap norn eggs via disk or the Net, and *Creatures* could turn from a harmless entertainment program into a huge experiment in simulated evolution. And you thought *SimCity* was complex!

Price: TBA. Out: autumn. Requires: LCIII or better, 8Mb RAM, System 7.5, 256-colour monitor, 35Mb free hard drive space.
Contact: Warner Interactive on 0171 391 4300.

The creatures live in a lush virtual environment, and it's up to you to teach them how to live there.

NEXT ISSUE

Can the computer really become a life form? Discover the latest developments in the science of artificial life – and learn how it could transform the way you use your Mac! – in MACFORMAT next issue, on sale Thursday 26 September.

HIGH-TECH GEAR

Top shelf technolust

If you lust after the latest hi-fi gear and drool over flat-screen TVs, Future Publishing's latest magazine *T3* should set your hormones racing. 'If you think high-tech gear is sexy,' says Editor Steve Jarratt, '*T3* is a top-shelf mag!'

Each month, *T3* (Tomorrow's Technology Today) will bring you the finest in home cinema, hi-fi, computers, cameras, mobile phones and more. Indeed, if it's black and box-shaped and you want it in your living room, you're bound to find it in *T3*.

Even if you just have a passing interest in technology, *T3* will bring you all the news, features and reviews you need to get the most for your money.

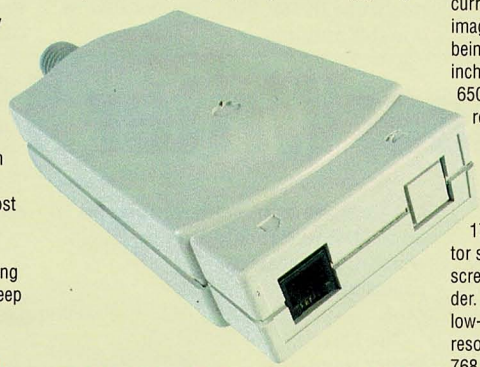
The first issue of *T3* goes on sale on Thursday 17 October. Costing £2.95, it's going to be available from all good newsagents. Keep an eye out for it.

GeoPort modem option

Apple's second GeoPort Telecom Adaptor Kit offers you a convenient, low-cost alternative to a modem. Not only does it enable you to connect your Mac to the Internet, but it also turns your Mac into a full-blown personal communications system – you may never need another gadget again!

The GeoPort itself is a small device that plugs into the back of any PowerMac or Quadra AV. Sophisticated software included with the kit enables you to use the set-up as a phone, fax or answering machine. You can even make phone calls or record incoming calls with a voicemail system on the Mac while, for example, you're also using it to write letters.

The GeoPort's modem facility operates at an impressive 28,800bps (bits per second), giving you the fast connection you need to browse the World Wide Web. The GeoPort Telecom Adaptor Kit is due in September. The price is still to be confirmed, but you should expect to pay around £150. Contact Apple UK on 0800 127753 for more details.



Get all the telecom features you'll ever need, all in one box – Apple's GeoPort adaptor.

Taxan screen squeeze

It'll cost you a cool £2,650, but Taxan's new Crystalvision 650 is a monitor worth selling your car for. Check out the wafer-thinness of the unit and the LCD screen dimensions.

The startling feature you can't ignore is the 650's diminutive depth. View your current monitor from the side and imagine the depth of the plastic casing being squeezed down to a mere 2.5 inches. That's what the Crystalvision 650 achieves – and there's still room for stereo speakers!

The liquid crystal display technology gives you a 14.5-inch screen that Taxan reckons is equivalent to a 17-inch monitor. Normal monitor sizes include the width of the screen's surrounding black border. The screen is a compact, low-power design offering a resolution of up to 1,024 by 768. For more details on this object of desire, contact Taxan on 01344 484646.

This really is a full-size monitor. Taxan's screen uses LCD technolog to give you the Kate Moss of monitors.

TwoPointZero

Over the years MDI has produced a strong series of CD-ROMs. Back in February 1995 we reviewed its distinctive and entertaining *Ghosts* title in MACFORMAT 21. Full of confidence for the future, the publisher announced a whole set of titles for that year, planning to follow the macabre *Ghosts* with the equally doom-laden *Disasters*. Which of course was just asking for trouble.

Explore 3D worlds in *Weird* and have your eyes opened to new possibilities. *Weird* poses questions like 'Is there such a thing as mermaids?'

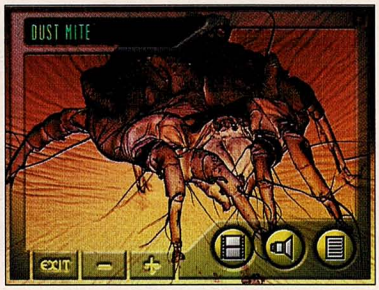
Now, emerging anew after a rough ride of financial wrangles and politics, the creative team behind the MDI titles has returned with a new identity – TwoPointZero – and its first two titles are on the way.

On the one hand *Weird* picks up on the current resurgent interest in the paranormal, inspired by the success of the *X-Files* TV series. It presents 3D environments you can explore to unveil evidence for and against time travel, the existence of intelligent alien life and more.

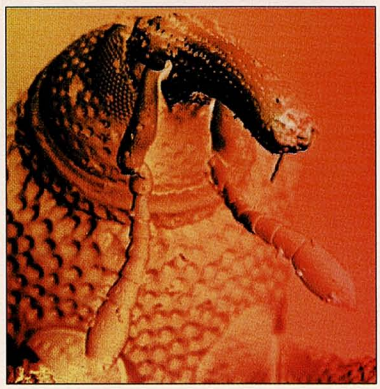
Meanwhile, the charming *Small* brings you a bug's eye view of the world, again with 3D. Only, this program shows you an everyday setting as if you were a tiny insect, using scanned photos captured by electron microscope. Offering a new perspective, *Small* introduces you to the science of atoms and cells, the components of life.

Both titles are due for release this autumn. About time too – welcome back, TwoPointZero.

For more details contact TwoPointZero on 01252 733169.



Discover another world taking place under your nose with the new CD-ROM *Small*.



Small uses computer graphics to offer a fresh perspective on the everyday world.

Rocket Science

New to the Mac, games developer Rocket Science is introducing a trio of glossy games for budding vapoursled pilots or bobbies on an alien beat.

By spring 1997 Rocket Science will have launched *Obsidian* and *Ganymede*, but first out is *The Space Bar*. A 3D adventure title set in the Thirsty Tentacle, The Space Bar is one of the seediest dives in known space.

As private eye Alias Node, you have to ingratiate yourself with the bar regulars to track down a dangerous criminal on the run. Not only can you interview the bar-room coves, but, using a special empathy power, you can become the creatures themselves.

Taking on alien characteristics of insect vision and bat hearing, you see the world in new ways, reliving alien experiences to gather the evidence. Featuring work by Ron Cobb, the man behind the alien designs for the Cantina scene in *Star Wars*, *The Space Bar* is due this autumn.

Obsidian presents a world that yields its secrets reluctantly – new from Rocket Science.

The epic, surreal 3D adventure *Obsidian* is expected to follow in time for Christmas. Exploring a fantastic alien environment, you lose your partner and have to enter four settings to unravel their disappearance. Logic and physics lose all meaning as you explore worlds where gravity can work in any direction.

Moving away from that cerebral approach, 1997's *Ganymede* offers all-out action, as you join a strike force battling against an alien race on Jupiter's largest moon. You have control of a vapoursled device that skims across the lunar surface as you fight and manoeuvre in a full 360° world.

For more details, contact BMG on 0171 973 0011.

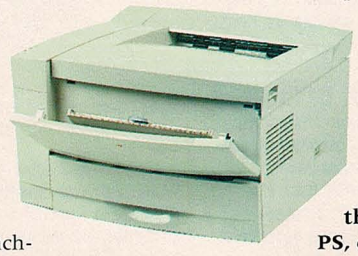
Apple LaserWriter 12/640 PS

For churning out pages in an office or college you need a durable workhorse of a printer. Apple's newest LaserWriter should prove just that. The £1,409 LaserWriter 12/640 PS prints in black-and-white at 600 dots per inch, and is capable of producing 12 pages a minute.

The new LaserWriter uses PostScript technology for the most professional output, and *Adobe Type Manager* for sharper on-screen text detail.

The paper feeder accepts 250 sheets at a time, while an extra tray accepts up to 80 non-standard sizes or weights, like heavier papers and postcards.

The LaserWriter is out now and also works with PC-compatibles and UNIX computers, so you can share this heavy-duty machine within an office full of different computers on a network.



Optional extras include a £350 duplex printing unit, enabling you to produce double-sided documents without having to feed the paper through the printer twice.

For more details on the LaserWriter 12/640 PS, contact Apple on 0800 127753.

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"THE TELEPORT PLATINUM MODEM CAN SAVE YOU TIME AND MONEY."
Accelerated for Power Macintosh

*BABT

When you're surfing the web, using a TelePort Platinum is like doing it in a speedboat. Because it takes full advantage of the PowerPC chip, you really can achieve blistering speeds up to 115Kbps. And for fax communications there are no rivals to the award-winning GlobalFax Software. That's why MacUser magazine gave the TelePort Platinum a full five-mice review - the highest accolade it can award to any product. The reasons are obvious - with the TelePort Platinum you get quality hardware with simply the best fax software available on any platform. And the feature list just goes on and on: free OCR Software, Fax/ARA and Fax/Voice call discrimintation, QuickDraw GX support, Credit Card Calling, WYSIWYG QuickFax - and, literally, much much more. Choose a TelePort Platinum for your Macintosh and you'll soon realise that Global Village simply outdistances the competition.

http://www.globalvillage.com/

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Camelot
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Carpe Diem
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Dabs Direct
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Gordon Harwood Computers
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0181 401 1111

MacZone
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Winner of Connectivity Hardware Award

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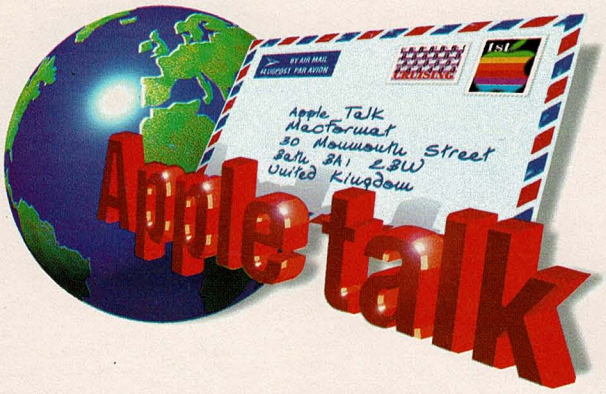

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Not just 'Apple Talk', but Umax chat, DayStar dialogue, Power patter... send us your views on *anything* Mac-related and get a binder if your letter is published on these pages.

SEND IN THE CLONES?

Every letter and postcard published on these pages wins a unique MACFORMAT binder. Well, okay, not quite unique. All right, *identical* to the one you can order by turning to page 128. It's pretty amazing how far this cloning technology has come, isn't it.

Bigger and better?

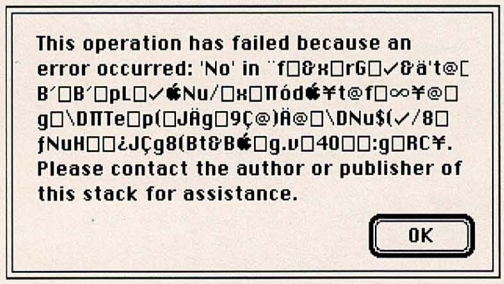
WISH LIST

Everything about computers is getting bigger and bigger. They generally carry more physical RAM, have bigger hard drives and, with the huge capacities of CD ROMS, the software they use is getting bigger and bigger. So what use is the 1.4Mb floppy drive which all machines are fitted with as standard? Apart from text files and small graphics files, they are becoming less and less useful. Surely Apple should be looking at fitting something along the lines of the Zip drive as standard, as 100 megs is a more useful capacity for transporting today's larger files etc?

Martin Watts
Norfolk, via FutureNet

Good thought. As far as we're aware, a Zip drive is currently available only in Power Computing's PowerTower 180 – as an optional extra. For full details of every current Mac and clone, see our guide, starting on page 34. And if you'd like to win a Zip – or a Jaz – drive of your own, see page 138.

Silly Things Your Mac Says, number 444, from a nameless *HyperCard* stack user – or rather, would-be user. Has your Mac given you a silly message? Grab it by hitting **[command] [shift] 3** and send it in to us on disk or via e-mail – and don't forget to include your name...


This operation has failed because an error occurred: 'No' in ¨f□&ʁ□rG□✓&ä't@[B´□B´□pL□✓Nu/□ʁ□Πód¥t@f□∞¥@□ g□\DΠTe□p(□JÄg□9Ç@)Ä@□\DNu$(✓/8□ ƒNuH□□¿JÇg8(Bt&B□g.υ□40□□:g□RC¥. Please contact the author or publisher of this stack for assistance.
OK

Point and shoot

GAMES

I was playing your 'PowerMac only' *Hexen* demo [from the MACFORMAT 41 Cover CD] on my non-PowerMac the other day and something struck me. *Hexen* is another one of those 3D games with lots of locked doors, isn't it? In my opinion, if you've walked aimlessly around one texture-mapped maze you've walked through them all. Pull a lever over on one side of the maze, then delight in retracing your steps all the way back just to get through to the next locked door.

I can't imagine how people get any enjoyment out of playing these '3D Locksmith' games. *Doom, Dark Forces, Marathon* – they're all the same. I didn't buy *Marathon* because I got stuck on the third level of the demo. There's nothing more annoying, having spent hours pulling all your levers and pushing all your buttons, than to find that you still can't get up to that enticing looking ledge.

Aren't these games supposed to be fun? If some pixellated, six foot tall aphid wants a barney, let me get at him. I want action, not the bloody *Krypton Factor.* Perhaps games developers should take a closer look at the very films they seem to be influenced by. The interior of the ship and the atmosphere of *Marathon* are very similar to James Cameron's excellent film *Aliens.* I'd like to point out that in *Aliens* the marines had a totally free run of their maze. The tension in Cameron's film was generated by wondering whether or not the soldiers could keep the baddies from getting in. Now there's an idea, isn't it? Let the *bad guys* figure out how to open the doors while we tool up and get ready to repel boarders.

Michael Veal
Fyfield, Essex

Alternatively, the puzzle element could be figuring out how to get a 'PowerMac-only' demo to run on a non-PowerMac... We too have found that you can sometimes coax programs to run on machines with lower specs than those quoted – but only sometimes. We'll continue to quote developers' 'official' system requirements.

Time check

ALTERNATIVE INPUT DEVICE

In MACFORMAT 37, Charles Barrand complained that his Mac gained time and asked: 'Has anybody thought of a way to fit Macs with a receiver to detect the time signal transmitted by the National Physical Laboratory in Rugby?' Yes, lots of people have thought of exactly this problem and solved it. Macs have been able to automatically tap into atomic clocks since at least 1988 (when I first did so), and of course the Unix boxes for much longer than that.

The Unix world on the Internet provides 'Time Servers' and has done so since the first days of the Internet. Their sole function is to give the correct time to other machines, adjusted for Internet delays.

In 1988, I just dropped *Tardis* into

MARKETING THE MACINTOSH

Recent letters have talked about 'a better way to advertise the Mac' – why not a simple comparison test? Most users of PCs seem to regard the Mac as a high-priced, incompatible machine. Why not run a short series of ads highlighting the different experiences of Family A, who bought a Mac, and Family B, who bought a Wintel PC.

Family A simply 'click and play, drag and drop', etc; Family B locate, modify or amend a number of essential files. Family A insert a CD-ROM and go; Family B return to retailer for new, better (or absent) sound or video card. (Even better if their machine is seen disassembled to fit same!) Family A connect a printer and produce documents; Family B hunt for Dip switches and printer drivers. The list goes on and on...

The only real similarity is when Family B decide to purchase industry-standard, well-known software – and so do Family A...

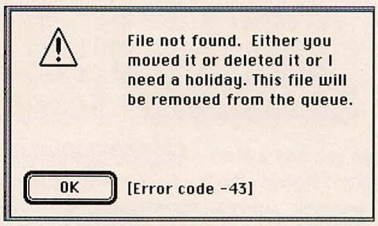
Apple has always failed to promote the Mac's great strength – that it is easier to use than a PC. Placed side by side, the average PC *appears* to do everything as well as a Mac; reality, however, is a little different.

When Apple starts promoting its 100% (well, almost) out-of-the-box usability, it might sell more machines. Merely presenting the Mac as just one of the alternatives will see Apple languishing with the other clone manufacturers – a sad fate for a machine that is (arguably) the world's best computer.

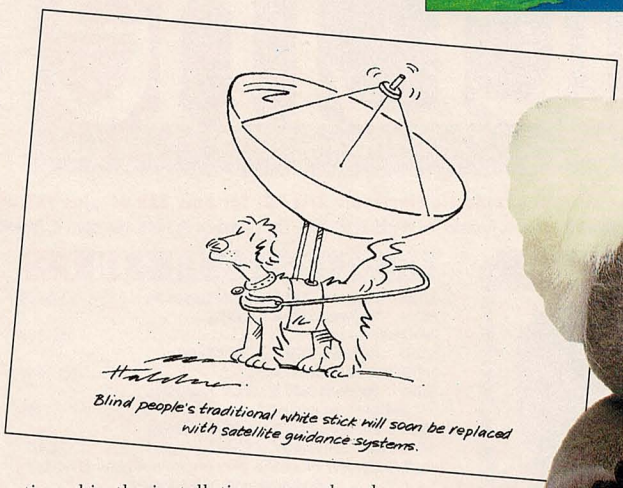
Clive Routley
Birmingham

Interestingly, Apple used this approach to great effect in the US. Excited father with new PC calls to young son: 'Hey, want to see some dinosaurs?' Son excitedly replies: 'Yeah!' Father then proceeds to struggle with CD installation instructions, navigating through 'directories', installing drivers, modifying ***config.sys*** *files, etc etc. Eventually he notices son is drifting away and calls out, 'Hey, where are you going? I've almost got it!' Son replies (voice choked with disappointment in manifest failure of father as parent): 'I'm going next door.* ***They've*** *got a Mac!'*

Wouldn't you love to see that on our TV screens?


File not found. Either you moved it or deleted it or I need a holiday. This file will be removed from the queue.
OK
[Error code -43]

Of course, you don't *have* to include your *full* name... This one's from 'Harry', who lives in Niagara, on Lake Ontario, Canada (but presumably not actually *in* the falls). He got this message while running *SoundMachine* on his 7100/66.



Two more MACFORMAT binder winners. Left, a complement to our 'Enabler' series, sent in by P White of Cheltenham. Above, a 'Shape of Australia' from Robin Scartaccini of Bunbury, Western Australia. Remember, whenever you write to MACFORMAT or enter a competition, an eye-catching postcard could win *you* a binder!

my Mac's System Folder and that did it all. Unfortunately, a quick search only showed up Wintel versions of it now. Sad but true.

If you want your Mac to automatically readjust its clock to microsecond accuracy, have a look at the following: (the meatier results of searching on 'Network Time Protocol'):

1. NTP Overview: **http://www.eecis.udel.edu/~ntp**
2. Time Servers to access: **http://www.eecis.udel.edu/~mills/ntp/clock2.html**
3. Mac software (Extensions): **http://www.eecis.udel.edu/~ntp/software.html**

Some of these will force an Internet connection every time you start up, for perfect precision. Others are better for us modem-bound plebs and will wait until we open an Internet connection, then quietly use that in the background.

If you want to get really groovy, there are references elsewhere to setting yourself up with a radio receiver tapping into the guaranteed-perfect GPS signal! For myself, plus or minus a few microseconds will just about do.

Darcy Horrocks
Australia, via FutureNet

'The correct time, adjusted for Internet delays'? How on earth do they do that? In our experience of the Net, the rate at which data transfers at any given moment is near enough to utterly unpredictable. At least, all those programs that display 'estimated time remaining' for a download might as well be flashing up random numbers...

Claris does care

FILEMAKER PRO EXTRAS

I recently upgraded to *FileMaker Pro 3* but found it a bit puzzling to see mentioned in the installation manual and on-screen that there was a CD-ROM version, which apparently has 50 templates and extra information that the floppy version does not have.

I contacted Claris and was informed that the CD version is only available in the US. This is a bit disconcerting, remembering that *FileMaker Pro 2.1* had a templates CD and the excellent 'Bacchus'. These were extremely useful, particularly as a guide when using the scripting facilities of the program. Maybe one day Claris will treat UK buyers as equal to its US customers.

John Smail
Musselburgh, East Lothian

Good news: Claris does care. The company released all the FileMaker Pro 3 *US CD extras for us to include on the* MACFORMAT *39 Cover CD – a collection of artwork for buttons and dialogue elements, sample AppleScript scripts and 44 more templates for home, small business and education. If you missed that issue, turn to page 128.*

Way out

SYSTEM 8 WISH LIST

Another idea for System 8. It's always seemed illogical to me that if you drag a file or folder to the Wastebasket, it erases it, but when you drag a removable disk to the Wastebasket, it spews it out of the drive. Why not change it so that to eject a disk, you drag it off the Desktop (in other words, to the edge of the screen)? Much more logical.

You would have to make sure though that a confirming dialogue asking if you really wanted to erase a disk appeared when you dragged it to the Wastebasket – otherwise we'd all be zeroing floppies by mistake for the first few weeks!

Richard Osmond
South Croydon, via FutureNet

The present system is sort of logical if you think of the 'Wastebasket' not as a 'bin' but as an 'exit'. Dragging anything to it is like saying 'Get lost', and selecting ***Empty Wastebasket*** *is like adding '...and I mean* ***permanently!'*** *Well, it makes sense to me.*

There's more than one Greg!

A CORRECTION

I was thrilled to see that my icon collection *(Greg's Assorted Icons)* was not only included, but mentioned in MACFORMAT 34. However, just to set the record straight, I am not the same 'Greg' who is responsible for *Greg's Buttons, Aaron,* or any of those excellent shareware programs. Much as I'd like to claim credit for them. ;-)

Gregory Ruderman
University of Illinois,
via FutureNet

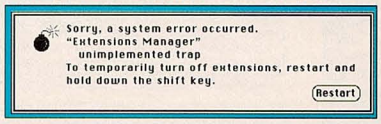
We're happy to set the record straight, and apologise to Greg (and to Gregory D Landweber of Harvard, who ***did*** *write* Greg's Buttons*) for the confusion.* **MF**

ARE YOU A WINNER?

In the MACGAMER supplement accompanying MACFORMAT 37, we had five copies of LucasArts' smash hit Star Wars epic *Rebel Assault II* up for grabs, specially autographed by the game's creator, Vince Lee, during a visit to MACFORMAT's own rebel headquarters. (Take *that,* Sinister Mega-global Corporate Parent! Er... Sorry. Won't happen again.) The winners are: Raymond Williamson of Bromley, Kent; Stuart Affleck of Portsmouth; Neil Copland (no relation to the forthcoming Operating System, we trust) of Glasgow; Jamie Roscoe of Swinton, Manchester; and Mark Coates of Cinderford, Gloucester.

In MACFORMAT 38, we had two of the newest StyleWriter colour inkjet printers to be won, courtesy of Apple UK. The first name out of the bulging cardboard box was Miss Sal Drennan of Oxford, who wins a gorgeous StyleWriter 2500 to colour her life. The runner up, who will receive a MACFORMAT-Classic-award-winning StyleWriter 1500, is Iain Abernethy of Glasgow. Congratulations to all!

Putting in a small appearance – Tiny Zone!


Sorry, a system error occurred.
"Extensions Manager"
unimplemented trap
To temporarily turn off extensions, restart and hold down the shift key.
Restart

And finally... Hello and welcome again to the Tiny Zone, the section of MACFORMAT that normally isn't here at all. Tiny Zone has elbowed its way onto this page for once simply to say a small thank-you to all the readers who wrote, faxed and e-mailed *in their dozens* to point out that we were wrong in MACFORMAT 40 about the 'palaver' you have to go through to load a custom set of Extensions at start-up. Simply hold down the **[space bar]** as your Mac starts up, you very graciously told us, and *Extensions Manager* loads first (except for a few vital System bits that must be loaded whatever custom set you've created). You can then select your preferred set, close *Extensions Manager,* and your Mac will complete its start-up using the Extensions set you selected. You are all, no doubt, perfectly correct. We can only plead that (a) our mind was racing ahead to the idea suggested by several readers that you should be able to switch Extensions *on the fly,* without having to restart, and (b) whenever we start up the Quadra 700 on our desk with the **[space bar]** held down, we get not *Extensions Manager* but only this (silly?) message, so we didn't know any better...

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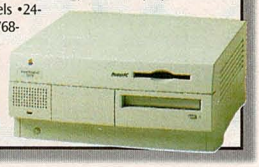

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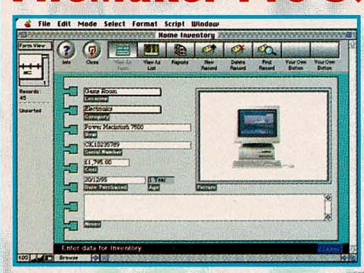

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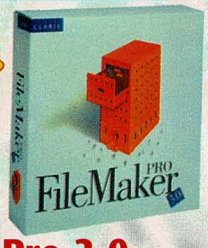

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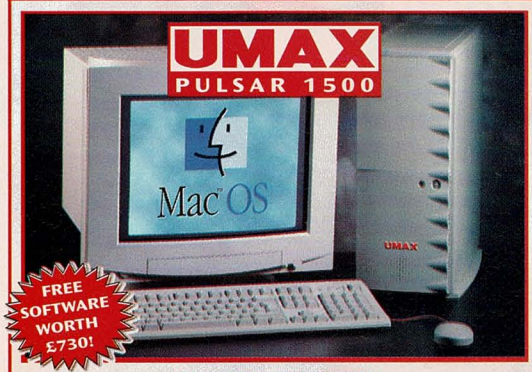

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Every Mac reviewed and tested!

r's guide

There's never been a better time to buy!

With a full set of new Macs from Apple, including innovative Performas, and more Mac-compatibles coming out from other companies, your choice is the best it's ever been. Lindsay Bruce assesses the range.

If 1995 was the year of the Internet, then 1996 is definitely the year of the Mac clone. With more companies signing up to Apple's Mac OS (operating system) licensing programme, there is increasing competition between manufacturers to supply your next – or first – Mac. The best ever time to buy a new Mac is right now.

This autumn blows the Mac market wide open, with new machines coming from four different companies – Apple, DayStar, Power Computing and Umax. It means you have the widest ever selection of Macs, and some of these are the fastest personal computers ever released.

It's all possible because of a decision Apple took two years ago to license the Mac operating system to other computer manufacturers. After ten years of going it alone, Apple decided that the best way to ensure the Mac's prosperity in the next century was to increase the Mac operating system's share of the market and build on its status as a mainstream platform.

Because of its vital ongoing investment in research, the only way that Apple could achieve this was to license the Mac OS to outside companies, allowing them to make computers able to run Mac software as reliably as anything Apple's ever released. With fewer costs, these firms are able to concentrate simply on making their Mac-compatible computers the best possible value for money. With the prices of Macs kept to a minimum, you'll have a superb choice of innovative machines at the best prices, opening up new avenues in the competitive business arena as well as increasing the Mac's traditional hold on markets like the home and publishing.

Over the next 25 pages, we look at the whole range of Macs and Mac-compatibles. Starting with a bold new direction for the once-humble home Mac (page 38), our survey takes in the business all-rounders and graphics powerhouses (page 44) before finishing with a look at the multiple-processor machines that map out the future of the Mac (page 54). It's the most in-depth look at what's available today that you'll find anywhere.

We've given every current machine a full testing. Where new models have been announced but not quite arrived, we've included as much information as we could gather. In our reviews, we've specified three key areas in order of importance: performance, ease of upgrading, and extra features (bundled software and the like) to help you choose the right Mac for you.

PORTABLES?

Where do the portable PowerBooks fit into the picture? Apple has an exciting, innovative new range coming at the end of the year, but we've had to sign a Non-Disclosure Agreement and can't tell you about them yet. Power Computing and IBM are also working on Mac-compatible portables. Watch for full details and tests in MACFORMAT SOON!

Continued on next page

What's in the box?

A huge variety of processors and parts lies within the case of a PowerMac. MACFORMAT opens the lid on the world's fastest personal computer.

On 2 October 1991, when Macs based on the Motorola 68K series of processors like the 68040 were at their height, Apple announced its intention to move the Mac to a new, faster chip, effectively launching a brand new computer onto the market.

The PowerPC series of RISC (Reduced Instruction Set Computing) processors, jointly developed by Apple, IBM and Motorola, offers substantially more processing power at higher speeds than predecessors like the 68030 and the 68040 could ever hope to achieve. To reassure both customers and developers, Apple pledged that any Mac based on this new chip would be 100% compatible with previous Macs.

The first PowerMacs arrived in early 1994 to a storm of critical acclaim. The 6100, 7100 and 8100 series PowerMacs brought new levels of speed and power to professional users and made the Mac range the fastest desktop computers ever built, by anyone.

The bar chart on the opposite page shows how much faster a PowerMac is over a range of 68K-based Macs. Even the mighty 840AV, the fastest 68K Mac ever made, is left for dust by the slowest of PowerMacs.

Apple followed up the release with faster models. Later it announced that it would move the rest of the Mac range – including its Performas (aimed at the 'home user') and the portable PowerBooks – to the PowerPC chip, and that it would license the Mac OS to other computer manufacturers.

The first company on the uptake was Power Computing. The company was jointly set up by Apple and Olivetti, the Italian computing giant which owns Acorn. Hot on its heels was Radius, a maker of monitors and graphics cards for the Mac. After an initial period of uncertainty about compatibility, the clone market has taken off, with more companies signing up and cheaper machines available for the first time. So far Radius is the only loser – it's decided to concentrate on video hardware and sold its clone programme to Umax, the Taiwanese scanner firm.

Currently there are four companies producing Mac-OS-based computers: Apple itself, Power Computing, Umax and DayStar. Motorola and IBM, the firms that manufacture the PowerPC chips used in all new Macs and Mac-compatibles, have also taken out a licensing agreement that allows them to sub-license the Mac OS to computer companies. Compaq, the world's largest personal computer manufacturer, is also rumoured to be looking seriously at making Mac-compatible machines. Other licensees include Soyo and Pioneer, both looking to attack the burgeoning Far East market.

The PowerPC Platform

The ultimate reason for all this activity is the PowerPC Platform (PPCP), a hardware standard for computers that use the PowerPC series of processors. It's an ambitious attempt to make personal computers, UNIX workstations and high-end network servers 100% compatible. The hardware used is broadly similar to what you'll find in today's PowerMacs, but it includes support for a variety of PC peripherals such as IDE drives and ISO slots, as well as PCI slots.

Computers based on the new standard will be able to run any applications based on the Mac OS, Windows NT, variations of UNIX and possibly IBM's OS/2. You will in effect get several computers in one box. At present, Apple is steadily moving towards the PowerPC Platform, but it's likely to be well into next year before we see true PPCP computers.

At the moment, Apple is committed to continue to license the Mac OS to anyone who wants to make Macs. From the licensees' point of view, not only is there great potential in the Mac

CPU, SEE?

'CPU', confusingly, can mean two rather different things. In adverts, you may see a price for 'CPU only'. This means the price shown is just for a Mac and doesn't include a monitor, keyboard or mouse. 'CPU' can also refer to the Mac's central processor *chip* – the PowerPC 601, 603 or 604 at the heart of the machine. Here, we'll use 'CPU' in this second sense only.

WHICH PROCESSOR?

Within the PowerPC family of processors, there are three main chips: the 601, 603 and 604. The 601 processor is the original PowerPC chip used in the 6100, 7100 and 8100 PowerMacs. In the current range, it's used in the 7200 and 8200 PowerMacs.

The 603 is a PowerPC chip designed for use in portables, but has found its way into Performas as well. The 603 is a cut-down version of the 601, but because it uses less power and so generates less heat, it can run at higher clock speeds. A 200MHz 603 chip has roughly the same computing power as a 130–150MHz 601 chip.

The PowerPC 604 completes the line-up and is found in the pricier Macs such as the 8500 and 9500. The 604 chip is substantially faster then the 601, offering roughly 1.5 times the performance when running at the same clock speed.

Variations on the same chips have been produced, such as the 603e and 604e. The 'e' stands for 'enhanced', showing the processor uses less power and work faster. The newest 8500 and 9500 PowerMacs use the 604e processor.

Future members of the PowerPC series include the 620 chip. Still in development, the 620 is expected to offer four to five times the performance of the 601 chip and run at speeds up to 500MHz. As yet, there is no date set for the first 620-based PowerMac, and it's likely that multiple-processor 604e Macs will play a bigger role of the next generation of Macs. But see this issue's news, starting on page 19, to see what follows the 620...

WHAT DO THE NAMES MEAN?

Apple's naming convention for its machines can be a little confusing. Then you've got the various configurations to deal with. For example, you might see '9500/150 32/2Gb CD' in an advert – what the hell is that?

First, the model name is based on the style of case. A model number starting with a 5 (such as the 5400) is Apple's all-in-one unit, with the monitor built into the case. A 6 (like the 6400) means it's a Performa, but it could be in either a desktop case or the new mini-tower. A 7 (such as the 7600) indicates a desktop Mac. If it starts with an 8, it's a mini-tower unit (an 8200 or 8500 for example), and if it starts with a 9, it's a full tower unit (the 9500 is the sole example to date). Confused? You should be – a higher number doesn't necessarily mean more power.

The second part of the naming convention is easier. The number immediately following the model number is the processor speed. So an 8200/120 runs at 120MHz, while the 6400/200 and the 9500/200 both run at 200MHz. What that doesn't tell you is that the 9500 has a mighty 604e chip, but the 6400 has a less speedy 603e processor. The clock speed doesn't give you the whole story.

Lastly, you've got the memory and hard disk configuration. The first number is the amount of memory the Mac comes with (in megabytes), and the second is the size of its hard disk. 'CD' means it has a CD-ROM drive (as all do now).

So our 9500/150 32/2Gb CD is a full-sized tower unit with the processor running at 150MHz. It has 32Mb of RAM, a 2Gb hard disk and a built-in CD-ROM drive. Now all we have to do is persuade the bank manager...

clone market, but it's also a step onto the ladder of producing PPCP machines – an extremely lucrative market looming on the horizon.

Spot the difference

Essentially, there is very little difference between a labelled Apple Macintosh and a Mac-compatible made by another company. Most of the components are identical, with only superficial changes such as the case and brands of hard disk and CD-ROM drive. All new PowerMacs and compatibles use the 64-bit DIMM and PCI architecture found in current PowerMacs like the 7200 (see the 'Anatomy' guide below).

The key areas where clones might differ from Apple Macs is in performance, price, ease of upgrading and bundled software. Performance differences are largely down to the clock speed of the processor chip, the size of the secondary RAM cache and the capacity of the hard drive. Prices vary wildly between manufacturers and dealers, so shopping around for your ideal system is a must.

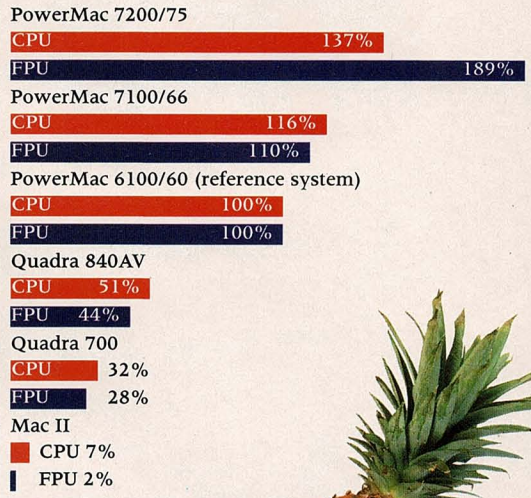
Today's choice of Macs offers something for a broad spectrum of people, from the novice home user interested in multimedia, through the self-employed worker or small business using spreadsheets and databases, to graphics and multimedia professionals who demand serious speed to produce their work. Then comes the future – the multiple-processor Mac.

This is designed to be at the cutting edge of Mac technology, and is aimed at the serious graphics user who needs every ounce of power he can get his hands on. Instead of a single chip running all the code for the operating system and application programs, individual tasks are split between the processors and the whole job is accomplished much faster. (That's the theory, anyway – see page 52.) Apple's first offering is a variation on the 9500, sporting two processors running at 180MHz. DayStar already produces a multiple-processor Mac, the Genesis MP. This uses four processors running at 150MHz. Umax and Power Computing also have multiple processor machines in the offing.

At present, most of the Mac-compatible activity is in the general-purpose PowerMac range, chiefly at the higher end of the scale. However, that's not to say you can't pick up a cheap clone. Most of the Mac-compatibles come in substantially cheaper than an equivalent Apple Mac. While Apple has stolen centre stage at the moment with its new super-fast range, the clone manufacturers already have new, faster and cheaper models in the wings.

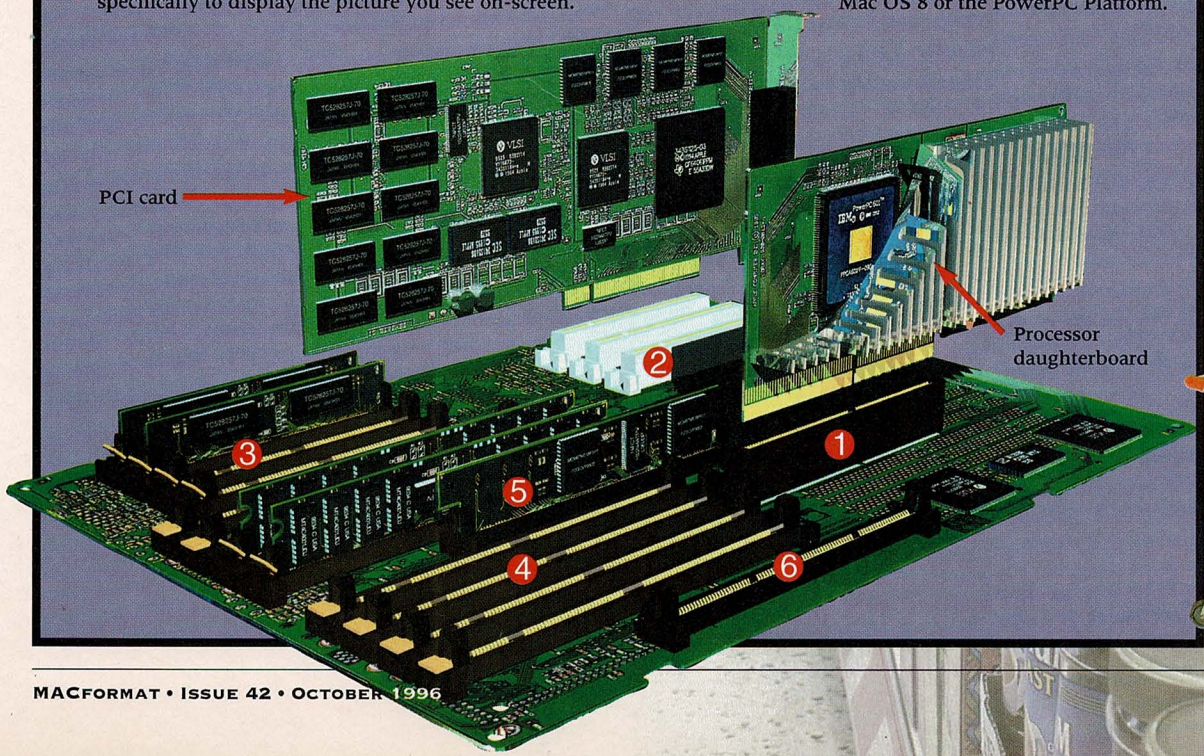
How do PowerMacs compare?

To show you how current and past PowerMacs compare with the 68K Macs, we used *Norton System Info* to test a range of Macs and PowerMacs. We've taken the first PowerMac, the 6100/60, as our benchmark, and the speed of the other Macs is expressed as a percentage relative to this. Two ratings are given: one for CPU (Central Processing Unit) performance, the Mac's raw processing power, and one for FPU (Floating Point Unit) performance, which is the Mac's raw number-crunching power. An FPU is essential for many powerful programs such as 3D modelling and spreadsheets and is built into the PowerPC chip. As you can see, all of the PowerMacs far outstrip their 68K predecessors in both areas.



Anatomy of a PowerMac

1. Processor daughterboard slot: most new PowerMacs (the 7200 is the most prominent exception) have the main processor fitted on a card that's separate from the rest of the computer circuitry. This enables you to remove it easily and replace it with a faster processor – or even a multi-processor card (see News, starting on page 19).
2. PCI slots: every desktop Mac you can buy today is fitted with Peripheral Component Interconnect, an expansion slot for graphic accelerators and other types of card. PCI is faster than the NuBus system it replaces.
3. VRAM slots: most Macs have extra RAM fitted specifically to display the picture you see on-screen. The amount of VRAM (Video RAM) your Mac has dictates the number of colours it can display and the screen resolution it can handle.
4. DIMM slots: used to fit DIMM chips, now the standard format for memory chips on the Mac.
5. Cache slot: the RAM cache stores frequently-accessed data that your Mac would normally have to pull down its regular memory. The cache uses a quicker format of memory chip than DIMM chips, but it's more expensive.
6. ROM slot: the story on this mystery slot is that Apple is saving it for use with a future technology – perhaps Mac OS 8 or the PowerPC Platform.



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The Family Mac

Apple
- **Performa 5400/160, £1,703**
- **Performa 5400/180, £1,997**

The Performa 5400/160 comes in the familiar off-white all-in-one case...

Apple's new strategy for the Performas is what it calls 'solutions-based'. Instead of churning out Macs that are all packed with features that appeal to everybody, Apple has identified the specific needs of particular users, and then built a complete Performa solution to suit each set of needs.

'Solutions' is definitely the buzz-word around Apple these days, and it seems to be working. In terms of specs, this Performa range is definitely the richest ever. All the new machines are based on 603e processors running at 160MHz or faster and have PCI expansion slots. They all come with astounding arrays of software, eight-speed CD-ROM drives, built-in 28.8Kbps fax-modems and hard drives exceeding 1.6Gb.

The new range is split up into three groups: the Family Macintosh, the Apple Home Office and the Apple Creative Studio. The first of these, the Family Macintosh range, comprises two Macs in cases similar in design to the previous 5200 and 5300 Performas. If you're a home user who wants Internet access, an integrated package for correspondence and accounts, multimedia, education and entertainment, all in one handy bundle, these new Macs have been made just for you.

The base model is the 5400/160. Its PowerPC 603e processor runs at 160MHz and it comes with 16Mb of RAM, a 1.6Gb hard disk, a single 7-inch PCI expansion-card slot, 28.8Kbps fax-modem and an eight-speed CD-ROM drive. Its built in 15-inch multiple-scan monitor can handle displays in resolutions of 640 x 480, 800 x 600 or 832 x 624 using the 1Mb of built-in VRAM.

Setting the whole thing up is simple: take it out of the box, plug it into your telephone and mains sockets, and off you go. The 7-inch PCI slot will accept industry-standard cards, which you can use to expand the 5400's capabilities. You can get ISDN (Integrated Digital Services Network) cards for high-speed telephone and Internet connection, graphics cards, video digitisers, MPEG decoders and all manner of other exotic add-ons. It's worth noting that PCI cards come in two formats: 7- and 12-inch. The bigger cards won't physically fit inside the Performa, but these are becoming increasingly rare so you shouldn't find it much of a handicap.

Using the built in modem, you can send and receive faxes at 14.4Kbps, and connect to bulletin boards or the Internet at 28.8Kbps. Both fax and communications programs are included in the bundle.

The Deluxe Family Mac is a Performa 5400/180, and its most striking and talked-about feature has to be its colour. We kid you not – Apple has released a black Mac. Well, 'charcoal grey', according to Apple. The idea behind this is to make the Mac more

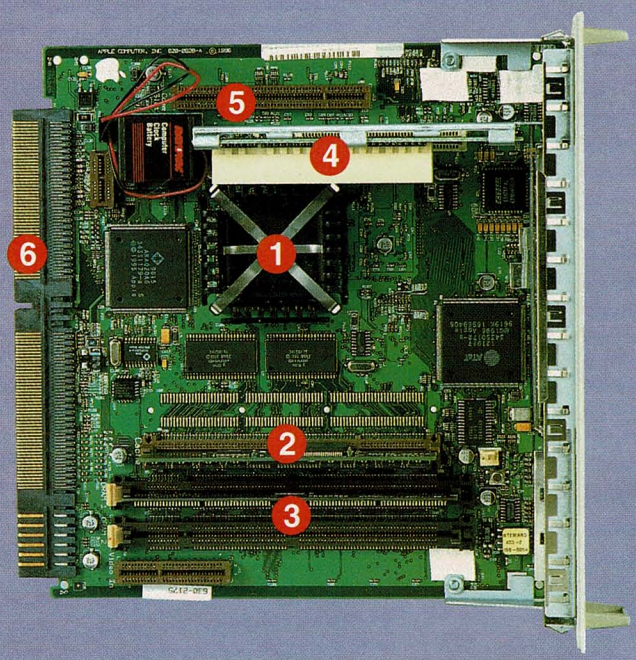
MODEM SPEEDS

Modem speeds are quoted as Kbps – kilobits (not kilobytes) per second. 28.8Kbps is a good speed for browsing the World Wide Web, generally the most time-intensive area of the Net.

FAST CD-ROM DRIVES

CD-ROM drives are often described as quad-speed or eight-speed. The first CD drives had a fixed rate of data transfer of 150K per second. Newer and faster machines are rated in relation to this figure, so an eight-speed drive shifts data at 1,200K per second.

HEART OF THE MATTER



1. The processor: under the black finned heatsink is a PowerPC 603e processor running at 160MHz, or 180MHz for the Deluxe (black) Family Macintosh.

2. Level 2 RAM cache slot: fitting a cache card could speed things up by as much as 20%.

3. RAM slots: all of the new Performas now use the 168-pin DIMMs found on the PCI PowerMacs. Both Family Macs have two slots, enabling you to fit a maximum of 136Mb of RAM.

4. PCI (Peripheral Component Interconnect) slot: you can fit PCI expansion cards such as video boards or 3D accelerator cards to your Mac via this slot, just as you would on a PowerMac.

5. Communications slot: all of the Performas come with a 28.8Kbps fax-modem card installed in this slot, but if you decide you can do without it, you can get an EtherNet networking card to fit this slot. For more details contact Apple on 0800 127753.

6. Motherboard connector: this fits into a slot inside the Mac and connects the motherboard to the rest of the computer when you push it back in.

appealing to the home user who wants an all-round entertainment and leisure machine.

Apple reckons that the black Mac will look more at home in your living room and complement the obligatory black TV, black hi-fi and black video. Apple's Performa product manager Clive Girling says the colour is an experiment: if the Performa 5400/180 is well received, further coloured models may well follow. Since this year's most fashionable colour is supposed to be lime green, we can't wait to see what Apple releases next!

The Deluxe 5400 has much the same features as the 5400/160, including 16Mb of RAM, the eight-speed CD-ROM drive and the modem, but this model runs at 180MHz and has a built in TV-tuner. The TV tuner is a lot easier to set up than you might think. There are no buttons to twiddle; just click on the **Search** button and your Mac will tune the receiver to the strongest signal. You then save these settings and that's it – the minimum of fuss. In addition to this, the software will enable you to play MPEG CDs and grab snapshots of still images from your screen, storing them on the hard drive. You can also hook up a camcorder to create QuickTime movies from your favourite videos. Neat stuff – but if you want to really sink your teeth into video, you should take a look at the Apple Creative Studio (page 42).

With the Family Macs you get a vast bundle of software, including *ClarisWorks 4.0* (the current version), the *Apple Internet Connection Kit, Full Throttle* (an adventure game), the 3D shoot-'em-up *Descent, Power Pete* (an arcade style game), *Thinkin' Things 3* and a pile of multimedia CDs that includes Disney's *The Lion King, Aladdin Activity Centre*, and *Toy Story Preview*. The *Apple Internet Connection Kit* provides you with all the software you need to get online, including an optional Internet Service Provider deal with Pipex. You simply call the firm up and give your name and credit card number to receive an e-mail address.

Bundling big-name games such as *Full Throttle* (rated 85% in MACFORMAT 37) and Interplay's compelling *Descent* (87%, MF34) is a good move on Apple's part. Given that most users buy at least one game for their Mac, getting games in the box adds extra value to the package.

Upgrading either model is simply a case of unscrewing the back panel and pulling out the motherboard drawer. On this drawer is the processor (which is not upgradable, sadly), the single PCI slot, two DIMM slots, a comms port (used by the 28.8Kbps modem) and a video port for fitting the TV tuner (already fitted as standard in the Deluxe model). The two DIMM slots enable you to expand the RAM of both the Family Macs to a maximum of 136Mb, which should be more than enough to see you through the next five years of home use.

Apple reckons that the black Mac will look more at home in your living room.

The main concern here is that the lack of a processor daughterboard will make upgrading this Mac a problem in the future. At least the PCI slot enables the Performas to use the latest high-speed peripheral components. Given the speed and price of both models, though, each is a worthwhile investment and will serve you and your family well over the next few years.

As the entry-level Performa, the 5400 series certainly has a lot to offer for your money. We're a bit dubious about whether it's worth paying the extra £300 for the Deluxe 5400 just to get the TV tuner and a marginally faster processor – and of course the black case. But it's just the kind of thing that you could enjoy showing off to the neighbours!

While the Performa 5400/180 has a dramatic black case. Only the short-lived Mac TV had offered this before.

NO-SCORE DRAW

We haven't given a rating to the Family Macs because Apple was unable to supply any finished production model 5400s for us to test. However, we'd rate it much the same as the 6400s overleaf for upgradability and extras, and the performance of the 5400/180 *should* be comparable to that of a 6400/180 (same chip, at the same clock speed).

EDUCATE AND INFORM

Apple ● Performa 5260, £1,175 ● Performa 6320, £1,299

To complement its new range of Performas, Apple is keeping the Performa 5260 (left) and the 6320 (right) in the line-up. The 5260 is designed for education purposes and is the cheapest Performa in the range, while the 6320 is now the most basic home Mac.

Both Macs are based on the old Performa motherboard design and lack the PCI and DIMM slots of their newer cousins, instead using the older 72-pin SIMMs and PDS expansion slots found in both older Performas and Quadras.

The 5260 is an all-in-one Mac, with a 100MHz PowerPC 603 processor. It has an 800Mb internal hard disk and quad-speed CD-ROM drive, as well as built-in stereo speakers and a 15-inch multiple-scan monitor, capable of resolutions up to 832 x 624 pixels. It comes in two configurations: one with 8Mb of RAM and one with 12Mb. The 8Mb model can only be purchased through Xemplar Education (tel. 01223 724200), the company established as a joint venture between Apple and Acorn to supply Macs to schools, colleges and universities throughout Europe.

The 5260's RAM can be expanded to a maximum of 64Mb via two SIMM slots. Getting to these is easy if you're familiar with older Macs: undoing two screws on the back enables you to remove a plastic panel, and then you can slide the whole motherboard drawer out. Also inside you'll find a communications slot for fitting an internal modem or EtherNet card, a TV tuner slot for fitting Apple's TV tuner card and a video slot for fitting a video input card.

The 6320 is a similar proposition to the 5260, but is designed for your home rather than your school. It doesn't have the 5260's built-in monitor; instead, you get the Apple multiple-scan 15-inch monitor, which sadly isn't the latest 15-inch monitor bundled with the new tower Performas. The rest of the older Performas – the 630 (the last-ever 68K-chip-based desktop Mac), 5200, 5300, 6200, 6300, 6260 and 5320 – are all now discontinued, so look out for some spectacular bargains on dealers' shelves as they try to shift the last of their old stock.

Continued on next page

Apple Home Office

Apple ● Performa 6400/180, £1,879
● Performa 6400/200, £2,232

The Performa 6400/180 is the first 'home Mac' to come in a tower configuration.

Continuing Apple's new Performa philosophy, the Apple Home Office series is aimed at anyone running a small business or working at home. Instead of the all-in-one design of the 5400 series, the 6400 series introduces something previously not seen in the Performa range: tower cases.

Apple's swap from desktop to tower Performa is based upon US market research which concluded that tower systems are perceived as more powerful and expandable than traditional desktop computers. Apple also believes the tower set-up offers greater flexibility without you having to go to the expense of a full-blown PowerMac. The move seems to be quite a gamble on Apple's part, so has it paid off?

The tower unit itself is about the same size as an 8500, but all similarity ends there – this tower has sex appeal. Instead of the heavy-duty tower cases of the PowerMacs, the Performa 6400 series is in a contoured case radically different from previous Macs.

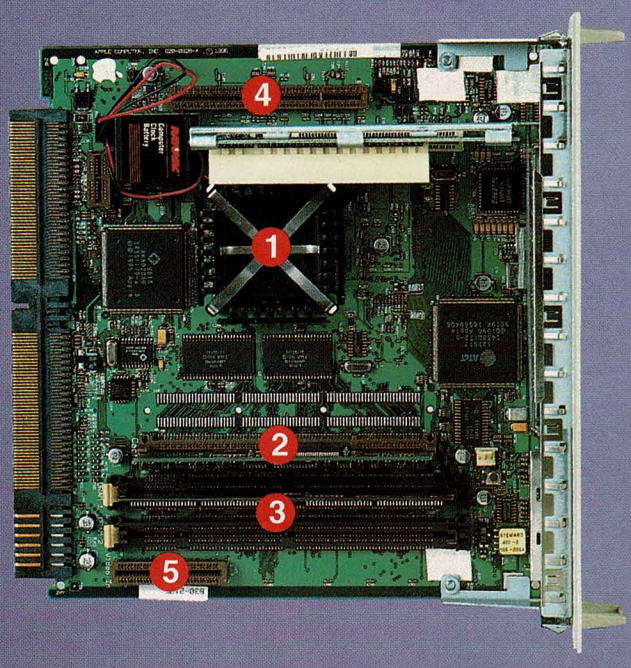
Getting into the case is easy. The whole front panel detaches to give you access to the drive bays, while the top comes off to provide access to the power supply, so you can connect an additional 5.25-inch drive into the empty bay. Around the back is a motherboard drawer similar to the one found on the 5400 series, but fitted vertically to suit the tower's dimensions. Getting this out requires a small cross-head screwdriver to remove three screws. Then the whole drawer slides free, enabling you to gain access to the expansion slots.

The Apple Home Office series comes in two configurations: the 6400/180 and the 6400/200. The former is based on a 180MHz PowerPC 603e processor and comes with two PCI expansion slots, two DIMM slots, a 1.6Gb hard drive, a 28.8Kbps fax-modem, an eight-speed CD-ROM drive and 16Mb of RAM. The two DIMM slots enable you to expand the 6400's memory to 136Mb – an impressive leap on past Performas where you could only achieve a maximum of 64Mb. The 6400/200 model is identical, but has a 200MHz (yep, you heard right –

TOWER POWER

You might be wondering if the sleek, sexy new Performa tower design will make its way over to the PowerMacs. Nope – sorry, but Apple has no plans to do so. It says the Performa design doesn't allow for the kind of expansion or flexibility demanded of the PowerMacs.

HEART OF THE MATTER



1. The PowerPC 603e processor in the Apple Home Office tower Macs runs at a well nippy 180MHz and 200MHz.

2. Both the 6400s come with a slot for a Level 2 cache card, but only the 200MHz model comes with one fitted – a 256K one.

3. Like the home Macs, the tower Performas offer two DIMM slots, meaning you can expand them to a maximum of 136Mb of RAM.

3. With the tower case allowing more room, the 6400s can take two PCI cards for adding expansion cards made by Apple or other companies.

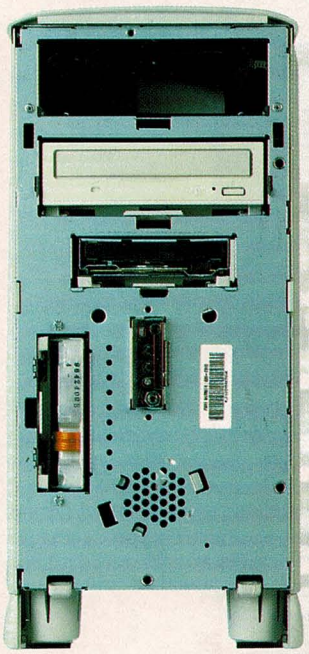
4. Like the comms slot in the other Performas, this slot comes with a 28.8Kbps fax modem card stuffed in it – but if this isn't critical to you, you can always fit an EtherNet card in here.

5. Video connection slot: this slot provides an audio-visual link to the motherboard.You can fit Apple's own Video System card into this to give you video in- and out-ports, effectively turning your Performa into an AV Mac.

200MHz!) 603e processor, a 2.4Gb hard drive and a 256K Level 2 RAM cache fitted. For the extra £350 that the 6400/200 will set you back, Apple should really have considered throwing in some more RAM or a TV tuner card, especially since you could buy the extra 800Mb of hard disk space and the Level 2 cache separately for around the same price. There just doesn't seem to be enough incentive to go for the faster Mac.

Both Macs come with keyboard, mouse and Apple's latest 15-inch multiple-scan AV monitor. The monitor is an FST (Flat Square Tube) with a maximum resolution of 1,024 x 768 pixels. It's fitted with two hefty bass reflex speakers either side of the screen, which you then plug separately into the speaker port on the back of the Mac.

The speakers make the screen dimensions look a little small but certainly make multimedia and games entertaining. If that wasn't enough, Apple has left the single mono speaker found in all Macs since the 128K well behind by building surround-sound into the *Mac's* case. There are no fewer than *three* speakers: a stereo pair and a sub-woofer that makes the room shake when you play *Doom*. It's not true surround-sound, which requires more audio information than a stereo track can provide, but this alternative bounces off objects around the room and gives you the feeling of real depth. We're not sure why Apple thinks that both the Mac and monitor should have stereo speakers, but the monitor will be available separately – look out for a review in MACFORMAT.



The front of the case snaps off to reveal the drive bays. Stop gawping – haven't you seen a naked Mac before?

The Apple Home Office series comes with the same software as the Family Macs, but you also get *ClarisImpact* presentation software and *ClarisOrganiser* – the Mac equivalent to a Filofax(™) – to help you sort your life out. A presentation program seems a bit of a strange choice for what is essentially a home office Mac, but then you could use it to put presentations together at home and take them into the office, or take them with you to impress your bank manager.

Overall, it has to be said that the amount of bundled software you get with the Performas has gone from the impressive to the ridiculous. In fact, it's getting to the point where you can pull the thing out of the box and set it up in five minutes, only to spend the next two weeks exploring the contents of the hard drive before you manage to get any work done.

The 6400-series Performas are blisteringly fast. We tested the 6400/200 and were pleasantly shocked by the rate at which it blasted its way through both a 640 x 480 anti-aliased 3D rendering in *Strata StudioPro Blitz* and large *Photoshop* files. It sped through the 20Mb four-pixel Gaussian blur in 34 seconds, and got through the colour half-tone filter in a nippy one minute and 50 seconds. You could be forgiven for thinking this is a high-level professional Mac – but nope, it is designed for your home. Apple says the new high-speed 603e processor used in these Macs rivals the performance of some previous 604-based PowerMacs. Our benchmark tests confirmed this, with the raw CPU power of the 6400/200 matching the performance level of a 9500/132.

The FPU performance of the 603e is less strong, and our *Strata StudioPro* test render took a less impressive – but still nippy – 47 minutes.

This is quite an achievement, and given that the 6400/200 is heading towards half the price of what a 9500/132 would have cost you six months ago, it's certainly good value for money. Upgrading the machines yourself is a cinch, but that area is still our main gripe. Even though these are the most upgradable Performas ever, the addition of a daughterboard slot would have made them a more attractive purchase. But then, of course, that's why you have to pay more for a machine labelled 'PowerMac', isn't it?

APPLE HOME OFFICE

Performance	80%
Upgradability	60%
Extras	90%
MACFORMAT RATING	90%

ALSO ON SALE

The distinctive new 15-inch AV monitor bundled with the Home Office Performas will be available separately, Apple tells us. And so will the exciting new Avid Cinema card that's fitted in the Apple Creative Studio (overleaf), eventually. Watch for comprehensive reviews in MACFORMAT when they are released.

LEAD INTO GOLD

The board that all the new Performas are based on is code-named Alchemy, and it was originally developed for use in a planned range of PCI PowerBooks. The board offered so much power and flexibility, though, that it was decided to base the latest range of Performas on a variant of it.

MORE MACS FOR LESS

Apple is releasing what look like its strongest ever set of Performas, but you'll soon have more to choose from than Apple's star quintet if you're in the market for a home or low-cost office Mac. Both Power Computing and Umax have machines waiting in the wings.

The Power Computing PowerBase series should be available by the time you read this. Its 603e processor running at a minimum of 180MHz puts the PowerBase in the same league as the Apple Home Office, but there's also a 240MHz option. Each machine comes with 16Mb of RAM, a 1.2Gb hard drive and an eight-speed CD-ROM drive. British prices are still to be set, but US prices for the PowerBase range start from under $1,500 (£990). If you want a different set-up, Power's forthcoming direct order line (see News, page 19) will enable you to buy your own custom set-up, adding extra RAM or building in peripherals like Iomega's Zip Drive storage device.

One major plus for the PowerBase is a built-in 3D accelerator card from ATI. If you use a QuickDraw-3D-compatible program like *3D World*, your 3D images and animations are rendered over six times more quickly than even a PowerMac 9500 can achieve. And uniquely, the PowerBase uses a type of keyboard and mouse connection called PS/2. It's the standard used on PC-compatibles, so you have a wider choice of replacement keyboards and cheaper joysticks.

The PowerBase is Power's budget range and comes in a similar case to this PowerCenter.

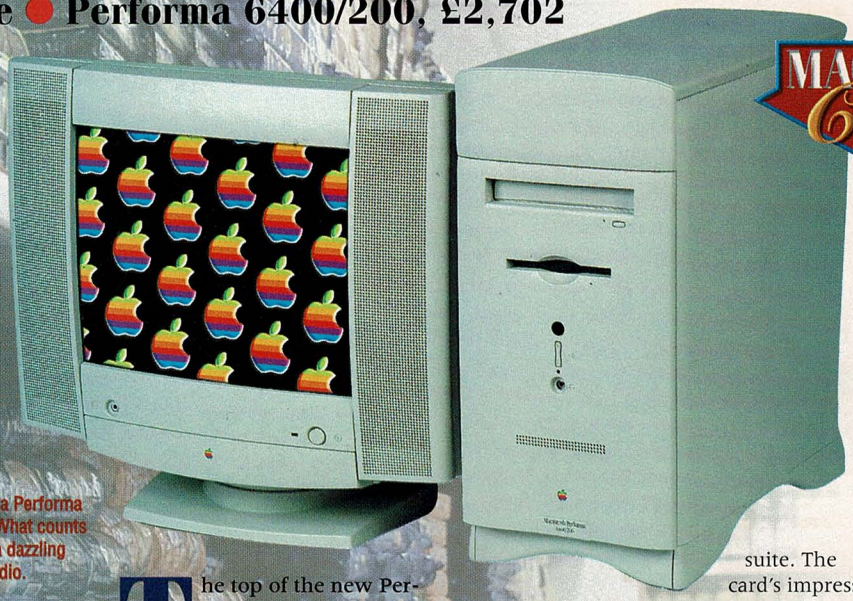
Umax, meanwhile, will introduce its Nova range at the beginning of October. All Nova computers come with an eight-speed CD-ROM drive, a built-in 28.8Kbps modem and a selection of software. The Nova itself is broadly the equivalent of a Family Mac, with a 603e chip running at 140MHz, 8Mb of RAM and a 1.2 Gb hard drive. The Nova is expected to clock in at under £1,200.

The Nova Pro is its big brother; there's a choice of two with 603e chips running at 160MHz and 180MHz respectively. In a fetching tower case, the Nova Pro has three PCI slots to the Nova's two, 16Mb of RAM and a 2.1Gb hard drive. Even the faster of the Pro's should cost less than £1,650.

Continued on next page

Apple Creative Studio

Apple ● Performa 6400/200, £2,702



Outside it's a Performa 6400/200. What counts is inside – a dazzling creative studio.

The top of the new Performa range is a 6400/200 and is basically the same as the Apple Home Office Performas. However, Apple has pulled out all the stops for the Creative Studio. Based on the same 200MHz 603e processor, this Mac comes with 24Mb of RAM, a whopping 2.4Gb hard disk, an eight-speed CD-ROM drive, a 256K Level 2 RAM cache card, a TV tuner card, a 28.8Kbps fax-modem and an Avid Cinema card.

This card is a brand new piece of kit that enables you to digitise, edit and output video. Basically, it turns your Mac into a complete video editing suite. The card's impressive technical specs are in the 'Heart of the matter' box below, but what really matters is what you can do with it.

With this Avid card and its bundled software, you can even copy a video recording onto your Mac, edit it, then record it back onto videotape. Your home movies need never be dull again! The Creative Studio's hard drive has plenty of space for even a 30-minute production.

The card can't record at full screen size, so it is probably of limited use for anything approaching professional video production, but the Creative Studio does enable you to manipulate near-broadcast-quality video images for well under £3,000 all-in – another first for Apple.

You also get the most impressive software pack we've ever seen. Along with all of the titles that come with the Family Mac, you also get *Adobe PhotoDeluxe*, an image-editing program which is essentially a simplified version of *Photoshop* and scored 85% in MACFORMAT 39; *Kai's Power Goo*, the fabulous new image distortion software from MetaTools (rated 90% in MACFORMAT 41); *Dabbler 2.0*, a 'natural media' paint program you can use to create traditional paint effects (90% in MF35); and *Cubasis AV*, a very capable sound creation and editing suite for producing your own music and sound tracks (rated 81% in MACFORMAT 37).

The basic idea behind bundling this wealth of software is to provide you with absolutely everything you need in the box from day one. As our ratings show, it's all great stuff too – though the fact that every one of the programs is a 'junior version' of an industry-standard professional application does demonstrate who this is aimed at. Pro's will probably opt to buy a PowerMac and invest in Avid's high-end *Media Composer* system, *Photoshop*, *Painter* or *Cubase* instead.

Still, the Creative Studio is perfect if you're interested in all facets of digital media. With this Mac, you can edit video, retouch still images, create your own graphics, create and edit sound, make your own Web pages and author your own multimedia straight out of the box. There's a noticeable shortage of a desktop publishing package in the box, but overall this has to be the ultimate enthusiast's Mac.

The Creative Studio's hardware is identical to the Home Office range, but with 24Mb of RAM, the TV tuner card and the *Avid Cinema* card. We're still sceptical as to whether this makes it worth the extra £480, especially if you don't intend to use the video editing suite much, but to be honest it's the bundled software that tips the scales. Two months ago this kind of bundle could have cost you £4,500, but now it comes for less than £2,750.

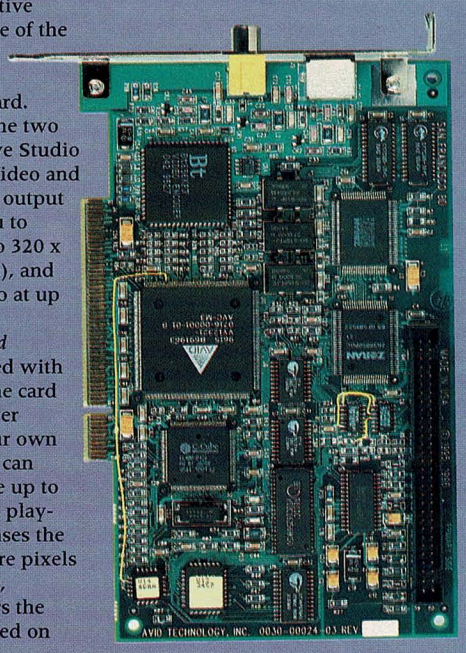
I WANT ONE!

The Apple Creative Studio was originally scheduled for release with the other Performas. However, because of a delay with the *Avid Cinema* software, Apple has postponed the release for an unspecified time, but says it will be available for Christmas. Get yours booked now!

HEART OF THE MATTER

The guts of the Apple Creative Studio are identical to those of the Home Office Performas – except for this little beauty (right): the Avid Cinema card. This card occupies one of the two PCI slots inside the Creative Studio and provides you with S-Video and composite video input and output ports. The card enables you to digitise video sized at up to 320 x 240 (half an average screen), and it can record and play video at up to 30 frames per second.

With the easy-to-use *Avid Cinema* software bundled with the Mac, you can use the card to create, edit and deliver multimedia, or edit your own home movies. The card can also interpolate the image up to 640 x 480 for full-screen playback. This process increases the resolution by adding more pixels to the ones in each frame, working out what colours the new pixels should be, based on what's already there.



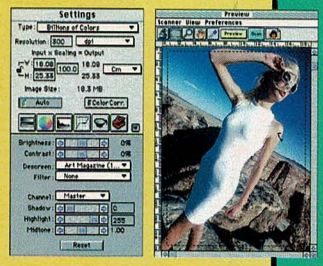
CREATIVE STUDIO

Performance	80%
Upgradability	60%
Extras	94%
MACFORMAT RATING	93%

ART CRASH, Germany

The next generation: ScanMaker E6

Dateline: 1996. With its 30-bit colour depth and 600 x 1,200 dpi resolution (max. 4,800 x 4,800 dpi), the new Microtek ScanMaker E6 boldly goes to parts of your images you've never seen before – and all at a very attractive price. With its newly-developed single-pass colour CCD, the E6 scans artwork in one pass with unmatched sharpness, brilliance and colour fidelity. Essentially, it now makes high scanning speed and optimum image quality the accepted norm. Naturally, Microtek's powerful software, ScanWizard, also comes with the ScanMaker E6 to help you to utilise its advantages to the full. What's more, the ScanMaker E6 is bundled with valuable software packages for image processing and text recognition. The PC kit even includes a real multi-functional SCSI-card and SCSI management software. Contact your local dealer, or one of the companies listed below.



Need a few technical details? Well, how about an optical resolution of 600 x 1,200 dpi (can be interpolated up to a maximum 4,800 x 4,800 dpi), 1.07 billion colours with a 30-bit colour depth, single-pass scanning method with rapid colour CCD and a maximum artwork size of 216 x 330 mm. In addition to ScanWizard, the ScanMaker E6 comes complete with various software packages for professional image processing and text recognition. TMA (Transparent Media Adapter) and Auto Scanner & Feeder are available as options. Distributed by: Computers Unlimited.

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MICROTEK
Scanners • Software • Support

Power Macintosh 7200/90

Apple ● £1,293

Introduced only a year ago, the 7500 is already reaching the end of its life...

For the time being, this is the entry-level PowerMac. However, Apple is currently reconsidering its position in any future line-up, so expect to see its price fall sometime soon.

Designed for office work, the 7200 sports a 90MHz 601 processor, three PCI slots, four DIMM slots for adding more RAM, three VRAM (Video RAM) slots and three internal drive bays – two 3.5-inch and one 5.25-inch. One of the 3.5-inch bays is taken up by the 7200's internal 1Gb drive, while the 5.25-inch bay of the 7200 currently available in the shops is occupied by a quad-speed CD-ROM drive. Round the back is the standard set of Apple connections, including both 10BaseT and AUII EtherNet ports.

Getting inside the 7200 is a dream come true. Two catches on the front underside of the case enable you to pull the top off, and the power supply, drives and other gubbins neatly swing upwards so you can see the entire motherboard. If you're fitting a PCI card, you don't even need to move this lot. A hinged piece of plastic on the other side of the case covers the PCI slots, so fitting a card is a 30-second job.

One drawback is that the 7200 doesn't have an upgradable processor daughterboard. The processor is soldered to the board, so options for upgrading are somewhat limited.

The 7200 comes with 16Mb of RAM and 1Mb of VRAM, and can be expanded to 256Mb of RAM and 4Mb of VRAM. A slot is provided for a Level 2 RAM cache, but the machine doesn't come with one fitted.

The 7200's performance is far from striking when compared to the new breed of PowerMacs, but that is reflected in the price. On our 20Mb *Photoshop* test file, the 7200 laboured its way though a four-pixel Gaussian blur in 42 seconds, and a colour halftone filter (eight pixel radius max) took a leisurely three minutes 12 seconds. A 640 x 480 *StrataStudioPro* render took all of one hour and 46 minutes.

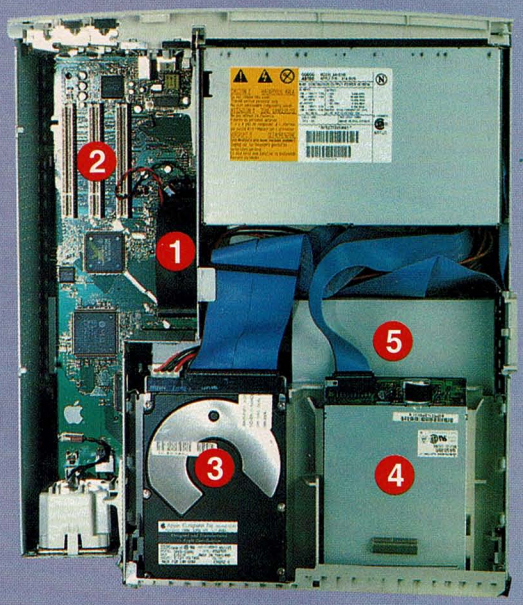
This Mac is aimed at the professional user who needs just a little more power than the Performas can provide and can do without the mass of bundled software that the Performas come with – it's designed as an office beast of burden, so multimedia titles, AV options and *Descent* will be largely irrelevant.

This Mac is ideal for running the most demanding of spreadsheets, word processors and inter-office mail. On top of that, bump up the 7200's RAM to 48Mb or more, and you've got a machine that will cope wonderfully with graphics, media authoring, games and 3D modelling. Fitting a 512K Level 2 RAM cache will speed things up by 15 to 20% – a sound investment to consider, whatever you use it for.

One of the great benefits of the PowerPC family of chips is that any Mac based on one – no matter which one and what the clock speed – is capable of handling almost any kind of application you throw at it. This is a big change from entry-level Macs of old, where the lack of a Floating Point Unit limited the amount of work you could produce in applications that required mathematically intense tasks like rendering.

Although the 7200 is much slower than a new 604e-based Mac, it's still a good solid fast machine, and at the price it's being offered at – £1,293 – you really can't go wrong.

Heart of the matter



1. Cooling fan: the 7200's PPC 601 processor is directly under this.
2. PCI slots: the 7200 comes with three slots and will accept both 7- and 12-inch cards.
3. Hard drive: the 7200 and 7600 share a similar case design, and in both models the drives and power supply hinge up and out to reveal the RAM and VRAM slots beneath.
4. Floppy disk drive: you know what this is...
5. Tucked in below the floppy drive is the quad-speed CD-ROM drive. Compared to today's eight-speed drives, it's a little slow.

In limbo

Apple says it has no plans to manufacture any more 7200s, but the line is not officially discontinued yet. Once current stocks of the 7200 have been sold, the 8200 (opposite) will become the entry-level PowerMac, and the only one in the entire range to use the 601 processor, the first PowerPC chip.

PowerMac 7200/90

Performance	55%
Upgradability	65%
Extras	50%
MACFORMAT RATING	79%

Power Macintosh 8200/120

Apple ● £1,850

The 8200/120 is a recent addition to Apple's Power-Mac range. Housed in the same tower casing as the 8500 (see page 48), the 8200 has a 120MHz PowerPC 601 processor, three PCI slots, four DIMM slots, three VRAM slots, a 1.2Gb internal hard drive, an eight-speed CD-ROM drive and one empty internal 3.5-inch drive bay. It also comes with 1Mb of on-board VRAM, a 256K Level 2 RAM cache and 16Mb of RAM as standard.

The 8200 is essentially a slightly faster version of the 7200 in a tower case. It isn't equipped with the processor daughterboard, it only has three PCI slots and you can only expand the RAM to 256Mb. So why pay £500 more for what is essentially a 7200 in a tall case? Good question.

Apple believes there is a demand for a basic tower system for office use – a Mac that will handle all the day-to-day stuff, with perhaps the occasional jaunt into more taxing areas. Upgradability is not crucial, since companies currently seem to want Macs that are as basic as possible, and hence cheap, but will last four or five years and happily handle the direst spreadsheets.

It's a tower because market research in the US suggested that buyers prefer tower units over desktop systems because they are perceived as more powerful, more expandable and therefore more desirable. Apple also found that the first thing to be installed on most office Macs is *Microsoft Office*, a business software suite widely used by large companies. So it's bundled *Office* with the 8200 and the 7600 – an odd move, in one way, given that *ClarisWorks*, from Apple's own software division, offers similar basic features.

To be fair, the 8200 is reasonably fast – it completed our Gaussian blur test in 43 seconds and the colour half-tone in two minutes and 21 seconds. But it's also flawed. For starters, it's based on the now-ageing PowerPC 601 chip. Secondly, it doesn't have a processor daughterboard, making the processor impossible to upgrade.

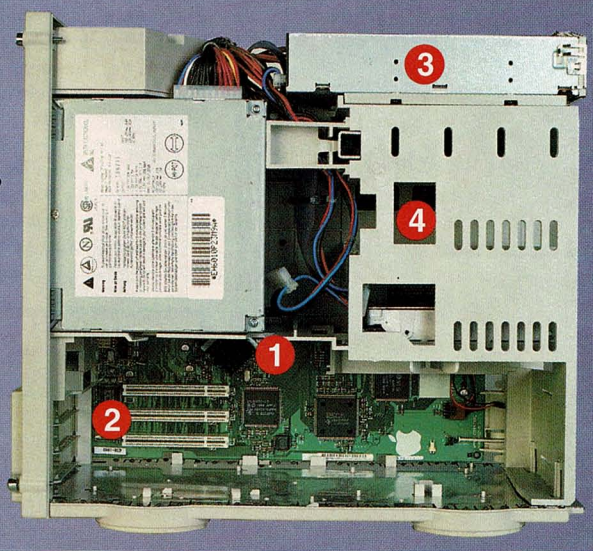
Getting inside the 8200 is easy – four thumbwheel screws on the back enable you to detach the steel outer casing and give you access to the drive bays and PCI slots. However, that's where it stops being fun, because upgrading the RAM in this Mac is an absolute pig – you have to take the whole thing to bits just to access the DIMM slots. Working at a reasonable pace with the right tools, it took us 20 minutes to fit another 16Mb of RAM to the 8200. And we knew what we were doing. Compare this with around 30 seconds for all of the clones and the 7200 and 7600 PowerMacs. For a machine that's otherwise cleverly constructed, this is a major flaw.

Overall, the 8200 is reasonable. It will fill a niche in your office, and the bundled software is a sweetener. But it's too expensive compared to other Macs in the range. Wait to see if Apple drops the price by £200 and it will then be worth considering.

The 8200 – a tower unit outside, but with little more than a 7200 inside.

HEART OF THE MATTER

1. The processor: mounted directly on the motherboard, the 8200's 120MHz 601 is not upgradable.
2. PCI slots: the 8200 comes with three slots and will accept both 7-inch and 12-inch cards.
3. CD-ROM drive: the 8200/120 sports an eight-speed CD-ROM drive.
4. Empty drive bay: this enables you to park an extra hard disk, Zip drive or small child inside the Mac for extra storage.



OLD HAT?

Once the 7200 has gone, the 8200 will be the only Mac in the whole range to use the 601 processor. Apple is phasing the 601-based Macs out, so eventually all new Macs will be based on either 603e or 604e processors. This means the 601 will have had a life of about three years. By comparison, Macs were based on the old Motorola 68K chips for over 12 years.

POWERMAC 8200/120

Performance	65%
Upgradability	65%
Extras	60%
MACFORMAT RATING	72%

Continued on next page

PowerCenter 120, 132, 150

Power Computing ● 120MHz, £1,879 ● 132MHz, £1,762 ● 150MHz, £1,997

The PowerCenter range is competitive in both price and performance.

Power Computing's PowerCenter range all feature the PowerPC 604 processor, similar to the last series of PowerMacs such as the 8500 and 9500. With the announcement of the PowerBase models (see page 41), these are now the middle of Power's range. The PowerCenter is currently available in three speed configurations – 120MHz, 132MHz and 150MHz – though the first of these is to be discontinued (so the price is sure to drop).

All the PowerCenters come with the processor mounted on a daughterboard, 16Mb of RAM, a 1Gb internal hard disk, three PCI slots, four RAM slots and three VRAM slots. The one significant lack is the omission of a Level 2 RAM cache card, although there is a slot provided.

Most of the PowerCenters boast three internal drive bays, one of which is fitted with a quad-speed CD-ROM drive. The exception is the less expensive 'low profile case' version, the 120, which contains only two bays.

The upshot of this similarity between the three machines is that you can happily opt for the discontinued 120MHz version and upgrade the processor daughterboard at a later date.

Around the back is the standard set of ports, including two for EtherNet. Something that sets Power's machines apart is the addition of an SVGA monitor port on the back, so you can connect any VGA monitor (like those used on PC-compatibles), without the need for one of those fiddly adaptors.

Design is largely a matter of taste, but we reckon the casing itself isn't pretty; indeed, next to Apple's sexy new Performas and the stylish Umax tower (page 50), it's boringly PC-like.

Still, the case itself is functional and getting inside is easy enough. Two catches and a thumbwheel screw – a raised, plastic-topped screw you can undo by hand – on the back panel hold the top on. Release these, and you have complete access to the entire motherboard. The four DIMM slots enable you to expand the PowerCenter's memory to a maximum of 256Mb, and you can boost the VRAM from the standard 1Mb up to 4Mb.

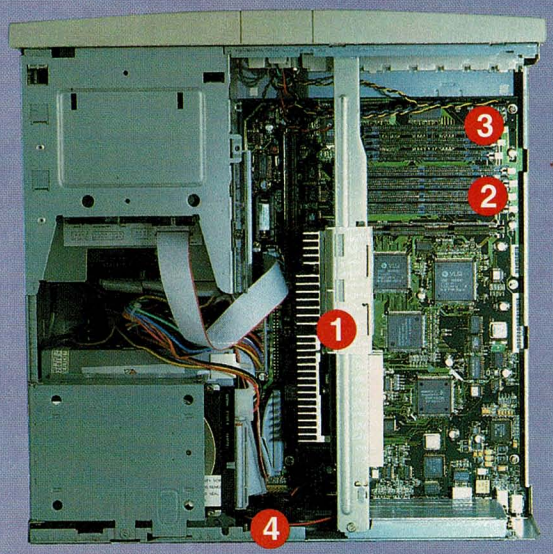
An impressive bundle of goodies is included: *ClarisWorks 4.0, Nisus Writer 4.1, Now Contact 3.5, Now Utilities 6.0, Quicken SE* and a pile of multimedia CDs. There are also 250 Bitstream PostScript fonts, a mouse and a *System 7.5 for Dummies* book, but no keyboard.

Performance was a let-down. The 132MHz and 150MHz versions were significantly slower than comparable Macs. The PowerCenter 132 took 28 seconds for the Gaussian blur, two minutes and 40 seconds for the halftone filter, and one hour 12 minutes for the *StudioPro* render. The 150 took 19 seconds, one minute 47 seconds, and just under 43 minutes, in that order. This means that the colour halftone filter took 40% longer on the 604/150 than on a 9500/150.

The PowerCenters are good packages overall, but their performance is not as good as the specs would lead you to expect. However, the current models use the older 604 chip, and Power is due to release 604e-based Macs in the UK by the end of the year.

Although the PowerCenters' performance is a bit of a let-down, the package you get for your money is very impressive (except for lack of a keyboard in the box) and a lot cheaper than an equivalent Apple Mac.

HEART OF THE MATTER



1. Processor daughterboard: this picture is of the 604/150, but all three PowerCenters look the same. All the PowerCenters are based on the 604 processor
2. DIMM slots: the PowerCenter series comes with four slots, enabling you to fit a maximum 256Mb of RAM.
3. VRAM slots: the PowerCenter range comes with 1Mb of onboard VRAM and has three slots for expanding it to 4Mb of VRAM.
4. VGA (Video Graphics Array) monitor port: this enables you to connect a PC-compatible monitor without an adaptor.

HOW MUCH?!

Why is the PowerCenter 120 more costly than the 132? Power Computing cut its prices as we were about to go to press, but also announced that it is discontinuing the PowerCenter 120, so released no official retail price for that model. The price we've quoted here for the 120 is the old one – but this is sure to drop, so keep an eye out for bargains.

POWERCENTER 120/132/150

Performance	72%
Upgradability	83%
Extras	78%
MACFORMAT RATING	80%

Power Macintosh 7600/132

Apple ● £2,585

The PowerMac 7600/132 marks a kind of border between the basic Power-Macs and the bigger professional machines, and hence there's quite a jump in price. Based on the new PowerPC 604e processor and running at 132MHz, the 7600 features a processor daughterboard, three PCI slots, eight DIMM slots, three VRAM slots, a 1.2Gb internal hard disk, and an eight-speed CD-ROM drive. It also has AV capabilities, providing you with two sets of RCA phono sockets for stereo sound input and output, a composite video-in port and an S-video input port.

Sadly, there isn't a video-out port, and while the video sub-system will cope with full-screen video play-through (non-recording mode), it's only able to capture video at 320 x 240 and 15 frames per second. This is only any good for capturing video for multimedia and presentation purposes – fine if you're a budding games developer, but less than impressive if you intend to edit movies. If you do want to output your masterpieces to tape, then you'll have to buy a PCI-based video-out board, such as the £999 MiroMotion DC20, separately. (We reviewed the DC20 in MACFORMAT 38, where it scored a creditable 81%.)

As far as expansion goes, the 7600 is very flexible. The processor is mounted on a daughterboard, which you can replace as faster boards become available. The eight DIMM slots enable you to expand the 7600's RAM from the standard 16Mb up to 512Mb, and the 2Mb of on-board VRAM can be expanded up to 4Mb. You also get a 256K Level 2 RAM cache fitted as standard.

The casing is exactly the same as the 7200's but contains slightly modified components to accommodate the daughterboard. Getting the lid off is the same as the 7200 and the cantilever design of the insides mean that to access the PCI slots, you just flip up a plastic panel. Getting to the memory and VRAM slots is almost as easy. Flip two catches and – hey presto! – the entire upper assembly including the power supply and drives hinges up and out so you can see the entire motherboard.

In terms of speed, the 7600 leaves the 8200 for dust – a good demonstration that it's not just the clock speed but the processor that counts. (The 7600 has a 604e processor clocked at 132MHz, compared to the 8200's 120MHz 601 chip.) In our tests for overall raw CPU horsepower, the 7600 was 35% faster than the 8200. For Floating Point Unit performance, the 7600 was 47% quicker than the 8200. In case you're statistically inclined, that makes the 604e around 30% faster overall than the 601 when running at the same clock speed.

The 7600/132 is a good value general purpose option.

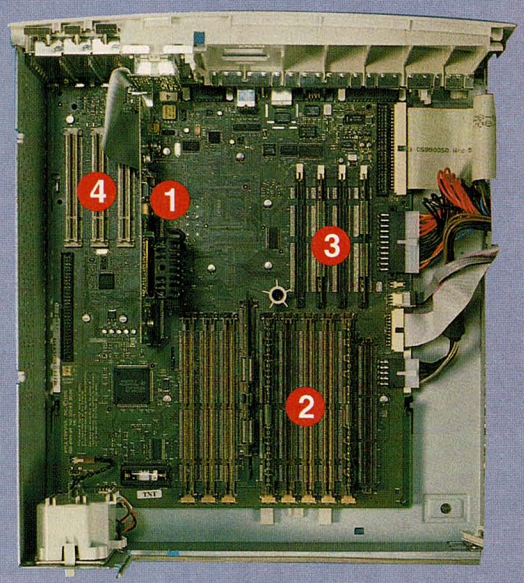
In our real-world tests, the 7600/132 zipped through our four-pixel Gaussian blur in 28 seconds and the *Photoshop* colour half-tone filter (eight pixels max radius) in one minute 48 seconds. The 640 x 480 *StrataStudioPro* render took under 45 minutes.

For what you get and the performance of the machine, the 7600/132 is good value for money. As ever, it depends on what you want to use it for. Like the 8200, the 7600 comes bundled with the *Microsoft Office* suite, so Apple obviously has it in mind for the workplace. But given a little more memory, the 7600 is a very capable professional graphics Mac (for the record, we lay the pages of MACFORMAT out on a 7600 and a 7500), and will happily handle multimedia-based video editing and 3D rendering as well as all the usual business applications.

AND IT'S GOODBYE TO...

The 7600/132 officially replaces the 7600/120 in the PowerMac line-up, after that model replaced the 7500/100 in Apple's last reshuffle a few months ago. If you're quick, you might still be able to pick up a 7500 and then add a processor daughterboard upgrade (due any day) to raise its performance to 7600 standards or beyond.

HEART OF THE MATTER



1. Processor daughterboard: the latest 7600/132 has a larger heatsink than the model pictured here.
2. DIMM slots: the 7600 comes with eight DIMM slots, enabling you to expand its RAM to 512Mb.
3. Like all the other Apple Macs, the 7600/132 boasts four VRAM slots, so you can expand it to 4Mb of VRAM.
4. The 7600 has three PCI slots arranged in the same manner as the 7200, and will take both 7-inch and 12 inch cards.

POWERMAC 7600/132

Performance	80%
Upgradability	80%
Extras	80%
MACFORMAT RATING	83%

Continued on next page

Power Macintosh 8500/180

Apple ● £3,631

The 8500/180 is a nippy, powerful machine with AV capabilities built in.

Apple's range of PowerMacs takes a big speed jump when it comes to the 8500. Featuring a 604e processor running at a gob-smacking 180MHz, the 8500 is a serious Mac for a serious user.

Housed in a mini-tower case, the 8500 sports a processor daughterboard, three PCI slots, eight DIMM slots, three VRAM slots, a 2Gb internal hard disk, an eight-speed CD drive and one spare 3.5-inch drive bay. You get 16Mb of RAM and 2Mb of VRAM fitted, which you can then expand to 512Mb and 4Mb respectively.

Like the 7600, the 8500 is an AV Mac you can use to digitise sound and video. It will display video in play-through mode at full-screen (640 x 480), but will only record at up to 320 x 240 and 25 frames per second. At higher resolutions, the frame rate drops through the floor as the amount of information the Mac has to process increases dramatically.

Unlike the 7600, the 8500 does have video output ports for placing the edited video onto videotape, but when you can only get half-screen output, this is about as much use as a chocolate teapot. The AV features are somewhat poorer than you'd expect and only slightly better than the 7600's. You'll have to buy an extra card – something like the MiroMotion DC20 – to get full-screen video. Given that if you're seriously into video you'll want a more sophisticated PCI board to get full screen digitising, the built-in video digitiser option looks like a largely redundant and unnecessary extra cost.

To be fair, the AV options on the 8500 do also enable you to record, edit and output 16-bit sound at a sample rate of up to 48KHz – better than CD-quality (44.1KHz) and good enough for all but the most demanding professional. But then again, all PowerMacs can record 16-bit sound at this rate. The only difference is that the 8500 has stereo input and output RCA plugs to enable you to plug in extras, as well as having microphone and speaker ports.

Like the 8200 and 9500, the 8500 is an absolute pig to upgrade – not because of its lack of expansion slots, but because of its incredibly awkwardly designed motherboard. To get to the DIMM slots in the 8500, you have to go through the same convoluted process of unplugging and disconnecting things as in the 8200, but with the added bonus of having to remove the processor daughterboard as well. Perhaps Apple thinks this is a good deterrent for those have-a-go novice upgraders. It may be, but if you know one end of a DIMM from the other, these tower Macs are an object lesson in sheer frustration. Why couldn't Apple have put the DIMM slots down beside the PCI slots, where they are in all the tower clones?

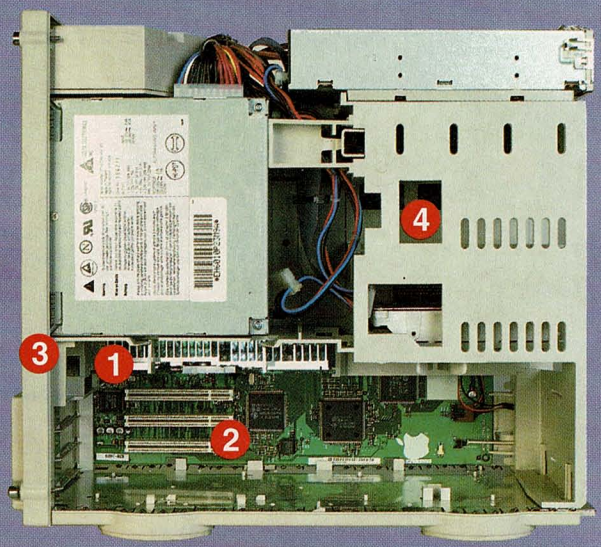
Apple expects to release the first new 8500s within the next month, so there were no finished units available for us to run tests on. You can expect performance above the PowerMac 9500/150 and PowerTower 180, although it does cost more. If you are after a fast Mac for heavy-duty image retouching, 3D modelling and rendering or multimedia authoring, then the 8500/180 is worth a look. If you don't need the AV capabilities and are prepared to spend a little more, you could go for the faster 9500 and gain the extra three PCI slots – as well as the street cred that goes with having one.

THE AV MACS

AV (Audio Visual) capabilities are not new; many previous Macs have had them. The Quadra 600AV and 840AV, the PowerMac 6100AV, 7100AV, 8100AV and 7500, and past 7600s and 8500s have all had AV capabilities.

HEART OF THE MATTER

1. Processor daughterboard: the 8500's board holds a 604e chip running at 180MHz.
2. PCI slots: like the lower-end Macs, the 8500 has only three PCI slots.



3. Video in/out ports: the 8500's AV capabilities enable you to digitise 320 x 240 video.
4. Internal drive bay: like the 8200, the 8500 has a 3.5-inch bay for fitting an internal drive.

PowerTower 180

Power Computing ● £3,050

Unsurprisingly, the PowerTower 180 is a mini-tower unit similar to Apple's 8500. The configuration gives the whole computer a nice compact feel, while ensuring that it's easy to manoeuvre around once you're inside the case. The case itself is an improvement over Power's previous models, with a steel outer casing instead of plastic. Based on a PowerPC 604 processor running at 180MHz, the PowerTower 180 is much the same as the PowerCenter 132 and 150 in terms of features, except an internal Zip drive is also offered as an option. It still offers just three PCI slots.

On the front is the main power button and the reset and interrupt buttons. Four thumbwheels on the back enable you to lift the steel cover off; from here you can gain access to the drive bays and expansion slots. The 180 comes with a generous 32Mb of RAM as standard and a 512Kb Level 2 cache. You can expand the RAM to 256Mb via four DIMM slots. This is a fraction of what the tower Macs will accommodate (the 8500 takes up to 512Mb of RAM, for example). Even though you are unlikely to fill all 256Mb just yet, it's something to consider for the future.

The PowerTower comes with 2Mb of VRAM and this can be expanded to 4Mb via three VRAM slots. On the back panel you'll find the usual set of Mac ports, plus the same VGA monitor port found on the PowerCenter series.

Pre-installed on the hard disk is System 7.5.3 (US version) and an impressive array of bundled software, including *ClarisWorks 4.0, Now Utilities 6.0, Now Contact* and *Up-to-Date, Nisus Writer* and more besides. You also get 250 Bitstream fonts, half of them TrueType and half PostScript. The utilities particularly are of immediate use, and we were pleased to see the very effective *Speed Doubler*, though we conducted our speed tests without it to assess the machine's own innate performance.

Again, there's no keyboard bundled with this machine – officially, this is to give buyers 'more flexibility' in their choice, and dealers may opt to throw one in as part of a deal.

The PowerTower is much faster than the PowerCenter machines. It whipped through the Gaussian blur in 22 seconds and the half-tone filter in one minute 26 seconds. The 640 x 480 *StudioPro* render took just a couple of seconds over 38 minutes. Although it's not nearly as fast as Apple's new 9500/200, it's still very respectable, though it falls slightly short of the performance we were expecting given its clock speed. The quad-speed CD-ROM drive is a bit of a let-down these days, and the package would be more impressive if the Zip came as standard.

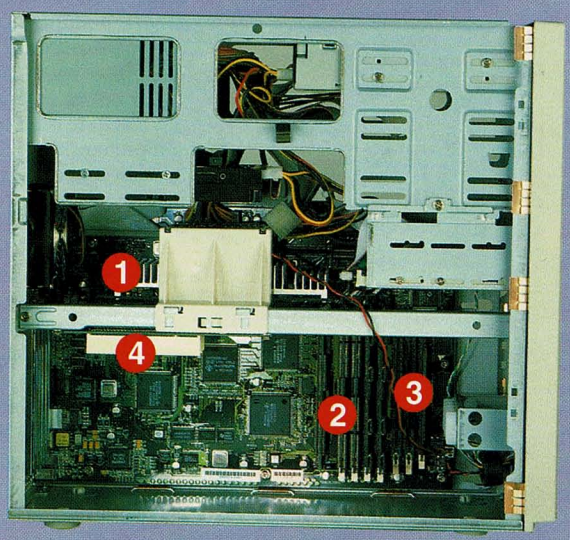
Overall, the PowerTower 180 is an impressive machine. Upgrading it yourself is easy, and it's considerably cheaper than comparable Apple models. On the down side, its memory can't be expanded to as great an extent as the 8500's, and it's not as fast as the current 9500/200 – but then it's also a lot cheaper.

The PowerTower 180 is impressive overall, offering a great deal at the price.

MORE POWER

Before you make a final choice on a Power Computing Mac clone, take a look at the new machines coming out shortly at a variety of price points. Details are on pages 41 and 61.

HEART OF THE MATTER



1. Processor daughterboard: the PowerTower 180's board holds a 604 processor running at 180Mhz.
2. DIMM slots: the PowerTower's memory is substantially easier to get at than in Apple's tower units. Four slots enable you to expand the clone's memory to 256Mb.
3. VRAM slots: three slots, one of which is filled with a 1Mb VRAM DIMM.
4. PCI slots: the PowerTower's three slots are arranged vertically, which makes fitting cards a little trickier.

POWERTOWER 604/180

Performance	81%
Upgradability	80%
Extras	79%
MACFORMAT RATING	86%

Continued on next page

Pulsar 1500

Umax ● £3,641

MACFORMAT Classic

Umax's first Mac clone – as powerful as a 9500, but cheaper and more expandable.

The Pulsar 1500 is Umax's first Mac clone and is based loosely on a PowerMac 9500/150. It sports a 150MHz 604 chip on a processor daughterboard, 16Mb of RAM, a 2Gb hard disk and an eight-speed CD-ROM drive. It has four internal drive bays and can take a huge 1,024Mb of RAM via eight DIMM slots.

The Pulsar unit is similar in size to a PowerMac 9500. The case looks stylish, with the CD-ROM, floppy drive and empty drive bays hidden behind a hinged door. In the middle of the bottom half of the front panel are the power, reset and interrupt buttons. Round the back you'll find a speaker jack and ports for two ADB devices, external SCSI, modem, printer and two EtherNet connections.

The Pulsar comes with an extended keyboard and mouse. On the hard disk, you'll find System 7.5.3 (UK version), *ClarisWorks 4.0*, *TechTool 1.1.1*, and FWB's *HD ToolKit* and *CD-ROM ToolKit* utilities.

Like all the clones on test, the Pulsar is substantially easier to get into than an Apple tower case. A single thumbwheel screw and two catches enable you to slide away one side of the casing, giving you instant access to the motherboard and all the slots. Six PCI slots are ranged at the back, much like the 9500, but with one difference. The top slot has a curious additional connector that Umax says is for a future 'mercury' card aimed to provide an enhanced fast SCSI port and faster EtherNet connections. Watch for more details in MACFORMAT when we get them. One of the slots is occupied by an IMS TwinTurbo 128-bit graphics card which provides the connection for your monitor.

All of these expansion slots are easily accessed and upgrading the RAM is a cinch. However, for our money the best feature of the Pulsar is the slot for fitting a second processor, turning it into a multiple-processor machine. No other Mac features this, and it's such a simple and effective idea. The Pulsar is designed to use the second processor as a 'slave'; because of the way the system is put together, only a specific Umax processor card will work in this slot. The card isn't available yet, but UK distributor IMC says you should be able to get one by the end of the year. Look out for a full test in MACFORMAT.

Although not the fastest Mac on test, the Pulsar blasted through our 20Mb *Photoshop* file with consummate ease. It completed our four-pixel Gaussian blur in 24 seconds, and the colour halftone filter took a mere two minutes and one second. The 640 x 480 *StrataStudioPro* render took just 39 minutes and 28 seconds. In terms of general performance, this means that the Pulsar is almost identical to Apple's PowerMac 9500/150.

The documentation that comes with the machine is quite good, but not as comprehensive as either Apple's or Power Computing's. There is a good trouble-shooting section though, and upgrading is well-explained.

There would be little to choose between the Pulsar 1500 and a PowerMac 9500/150, but the Pulsar comes with the advantage of a second processor slot, making it more upgradable. It's also substantially cheaper than either the 9500/150 or 8500/150, and you can push the RAM up to 1Gb.

UMAX PULSAR 1500

Performance	81%
Upgradability	92%
Extras	81%
MACFORMAT RATING	90%

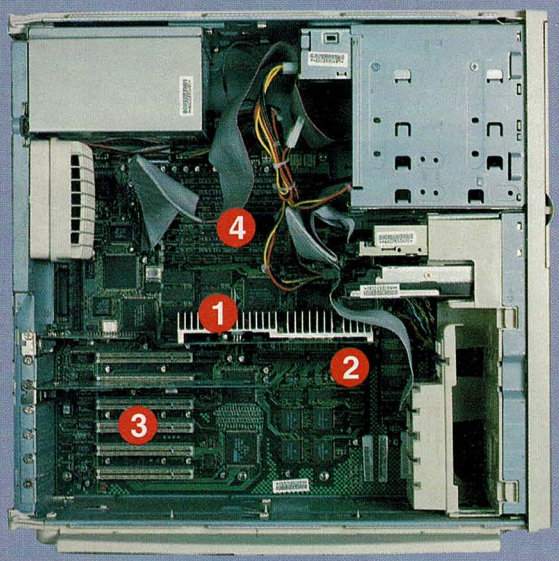
UMAX-IMUM

All the Mac clone manufacturers offer one-year warranties on their machines – except one. Umax gives you a two-year warranty on all its Mac clones. So if your computer breaks within the first 24 months, Umax will repair it for free or replace it for you.

ADB

The Apple Desktop Bus is the Macintosh-standard connection for keyboards, mice and joysticks.

HEART OF THE MATTER



1. Processor daughterboard: like the 9500/150, a PPC 604 chip running at150MHz.
2. Second processor slot: this is the Pulsar 1500's best feature. It will enable you to add a second processor at a later date for a huge speed boost.
3. Six PCI slots in all, with one for use with a 'mercury' accelerator card and one used by the IMS 128-bit graphics card, which gives you superior graphics.
4. DIMM slots: eight of them in all, enabling you to expand the Pulsar from 32Mb up to a huge 1,024Mb of RAM!

Power Macintosh 9500/200

Apple ● £4,001

Apple's flagship PowerMac is a tower with plenty of expansion capabilities and an incredibly fast processor. The first 604e to break the 200MHz barrier, this Mac really moves.

The PowerMac 9500/200 boasts six PCI slots, an eight-speed CD-ROM drive, a 2Gb internal hard drive, 12 DIMM slots, and an ATI graphics card with 2Mb of VRAM (expandable to 4Mb). The only disappointment is that there's just one empty 3.5-inch drive bay – you'd think that Apple could have made provision for at least a couple more inside a tower this size.

The 9500/200 comes with 32Mb of RAM and can be expanded to 768Mb. (Unlike Umax or DayStar, Apple doesn't recommend the use of 128Mb DIMMs, suggesting you only use 8, 16, 32 or 64Mb DIMMs in the 9500.)

Unlike most other PowerMacs, the 9500 doesn't actually come with built-in monitor support, but uses an ATI graphics card in one of the PCI slots. This cuts the impressive array of six PCI slots down to a slightly less impressive five, leaving you wondering why Apple couldn't have gone for the cheaper on-board VRAM solution. Granted, chances are that if you buy this Mac you'll want the PCI graphics card to drive a large monitor, but what if you intend to use it as a server? Providing it with a 24-bit graphics card as standard seems a waste of money.

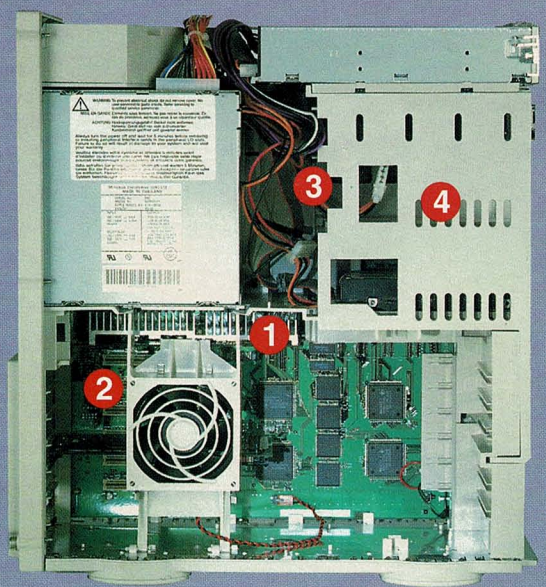
The 9500/200 – fast? You'd better believe it!

As in the other tower PowerMacs, upgrading the RAM complement in the 9500 is a major exercise that requires a good deal of patience. This is a problem, particularly as you'll probably buy this Mac for memory-intensive tasks where the 32Mb of RAM provided suddenly seems rather puny. Likewise, in light of Apple's strategy of shoe-horning as big a hard disk as possible into the Performa range, the 2Gb disk in the 9500 seems a little under-endowed. Mind you, if you can afford this Mac, an additional external hard disk and optical drive probably won't present too much financial difficulty!

So how did it rate in the speed tests? At 200MHz, we were expecting something special, and we weren't disappointed. The 9500/200 simply blew the socks off all the other machines on test. It blasted through our 20Mb *Photoshop* file at an incredible speed, with the four-pixel Gaussian blur taking 14 seconds, and the colour half-tone filter taking a mere one minute and nine seconds. Already impressive, compared to the other Macs. But it was the *StudioPro* render that gobsmacked us. The 9500 blitzed through the 640 x 480 anti-aliased render in just under 25 minutes. We're used to doing 640 x 480 renders on a Quadra 660AV, where an image similar to our test model rendered in a sluggish seven-and-a-half hours!

Everything considered, the 9500/200 is a highly impressive machine. Its undeniable speed makes it very attractive if you're a professional user who works with high resolution images or complex 3D models. At the end of the day, though, this is a hell of a lot of money to shell out for a Mac, even if it is faster than greased lightning.

HEART OF THE MATTER



1. Processor daughterboard: a 604e chip running at 200MHz – so fast that the board needs that big fan clipped to it to keep it cool!

2. PCI slots: six of 'em stuffed behind the fan, one of which comes with a graphics card pre-installed in it.

3. Tucked in here somewhere are 12 DIMM and three VRAM slots. We are not impressed with this design – it's hard to reach the slots when you want to fit extra DIMM chips.

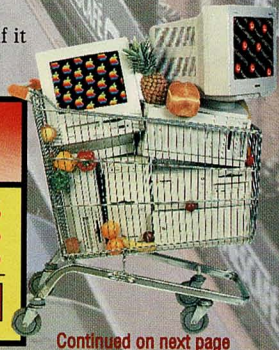
4. The lonely 3.5-inch empty drive bay. In a casing this big, Apple should've been able to shoe-horn a couple more in.

APPLE'S LAW

Moore's Law states that, on average, the power of computers doubles every 18 months. Let's see... Apple's top-line Mac three years ago was the 840AV (the fastest 68K Mac ever made), so the top-line PowerMac today (the 9500/200 here) should be four times the speed of an 840AV. Wrong! According to *Norton System Info* the 9500/200's CPU is *nine times* as fast, while its FPU is an astounding *13 times* as fast.

POWERMAC 9500/200

Performance	92%
Upgradability	81%
Extras	50%
MACFORMAT RATING	82%



Continued on next page

The future

The new PowerMacs are the fastest ever, but there's yet more speed on the way – and multiple processors will enable your Mac to work harder for less money.

MP SOFTWARE

Once you have an MP Mac, the Extensions you need for your System Folder and the additions to make programs like *Photoshop* MP-compatible are free from the Web site **http://www.daystar.com/**

The Macs we've looked at this issue are the fastest, most exciting new Macs you've seen for a long time, but Apple and its licensees are not about to let the grass grow under their feet. Just around the corner is the technology of the future: the multiple-processor Mac.

The idea behind multiple processing is simple: if a single processor can do a job, surely several can do it just as well but faster? A multiple-processor or MP computer features several (either two or four) of the same type of chip running alongside each other.

The first multiple-processor PowerMacs came from DayStar; it was this firm that actually made MP on the Mac possible. It's written the software that enables the Mac OS to gain access to the extra processors, something that System 7.5 isn't equipped to do.

This doesn't mean all your existing software can use the MP system. Each specific program also has to be altered so it can work on an MP Mac. At the moment only a few programs are MP-compatible, chiefly in the graphics area. The top image-editing program *Photoshop* is the MP flagship, but 3D program *StrataStudioPro Blitz* and Apple's QuickTime 2.5 video system are also available, and you can expect MP software from Fractal Design, MetaTools and Macromedia. Insignia's *SoftWindows* PC-emulator is also scheduled to go MP.

A future version of the Mac OS will integrate multiple processing into the System, offering several advantages. At present the Mac OS runs on MP machines using what's known as 'asymmetric' multiple processing. This mouthful means that only the most calculation-intensive tasks in an MP program, such as many demanding *Photoshop* functions, are split between all the processors.

Integration into the Mac OS will bring true 'symmetric' multiple processing, where you can run more than one program at once and have each using its own processor. As the other processors are effectively linked to a main processor running the OS, not only does this mean a big speed boost, but it should also mean that if a program crashes, it only affects one processor. So you should be able to work happily in other open documents while you relaunch the program – no restart required.

You can also perform very intensive tasks, such as rendering a 3D model, in the background without slowing down any of the other applications you have open. Essentially, it's like having two or more computers in one box, linked together so that they can share information and tasks.

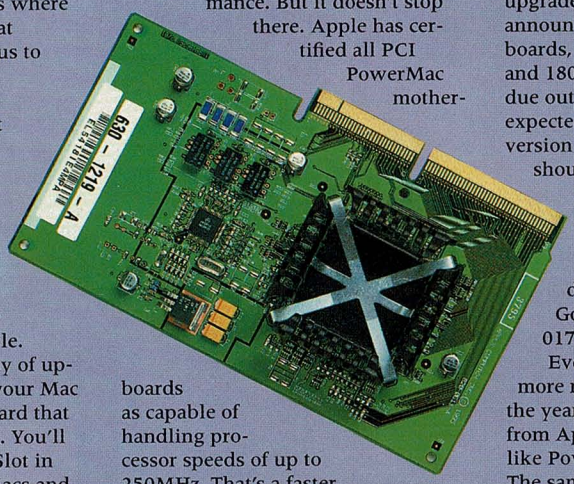
MP Macs already available include DayStar's Genesis MP range and Apple's PowerMac 9500/180MP (see pages 54 and 55). Other companies like Umax are expected to release similar machines soon, and you'll also be able to buy MP daughterboards (see the 'Going faster' box below for more on daughterboards). Sounds fabulous – two processors means twice as much power, right?

Sadly, it's not as simple as that. There is a significant overhead in allotting which sections of code run on which processor. So a dual-processor Mac will run MP software around one-and-a-half times faster than a comparable single-processor Mac.

Going Faster: PCI PowerMacs

If you've bought a PCI-based PowerMac over the last 18 months, you might be feeling a bit miffed that your Mac is being left behind by the new generation of 604e PowerMacs that run up to 200MHz. Well, you don't have to worry, because this is where it suddenly becomes clear that Apple has applied pure genius to the construction of PCI PowerMacs.

All PCI PowerMacs except the 7200 and 8200 are fitted with processor daughterboards (like the one to the right). As newer, faster processors come along, you simply swap the processor daughterboards over – they're designed to be completely interchangeable.



Previously, the only way of upgrading the processor in your Mac was to buy a accelerator card that plugged into the PDS slot. You'll find this Processor Direct Slot in Quadras, Mac IIs, PowerMacs and older Performas. The problem was that every Mac had a different motherboard, designed to work with a particular type of processor. This is not so with the PCI PowerMacs. In fact the motherboard in the 7600 is identical to the one in the 9500/200, minus a few PCI slots.

The upshot of this is that you can simply buy a new processor daughterboard and plug it into your PCI PowerMac to boost its performance. But it doesn't stop there. Apple has certified all PCI PowerMac motherboards as capable of handling processor speeds of up to 250MHz. That's a faster clock speed than anything currently available, and all PCI PowerMacs fitted with a daughterboard will be able to run safely at these speeds as soon as the processors become available. At present, the faster 604e processors are in short supply, so Apple has earmarked most of them for use in new PowerMacs. This means it won't be offering 604e-processor-based daughterboard upgrades for some time yet. However, upgrade company Phase 5 has just announced two 604e-based daughterboards, capable of running at 150MHz and 180MHz. The 150MHz version is due out in mid-September and is expected to cost £587. The 180MHz version is due mid-October and should cost £704. Either board can be used in the 7500, 7600, 8500 and 9500s and is 100% compatible with Apple boards. For more details, contact distributor Gordon Harwood Computers on 01773 836781.

Even faster boards should be more readily available by the end of the year. Expect to see boards on offer from Apple and independent firms like PowerTools (see News, page 19). The same motherboard design is used in all Mac-compatibles, which means that if you buy a Umax or Power Computing machine – or machines still to come – it too will be upgradable to a 250MHz processor, providing it has the processor daughterboard.

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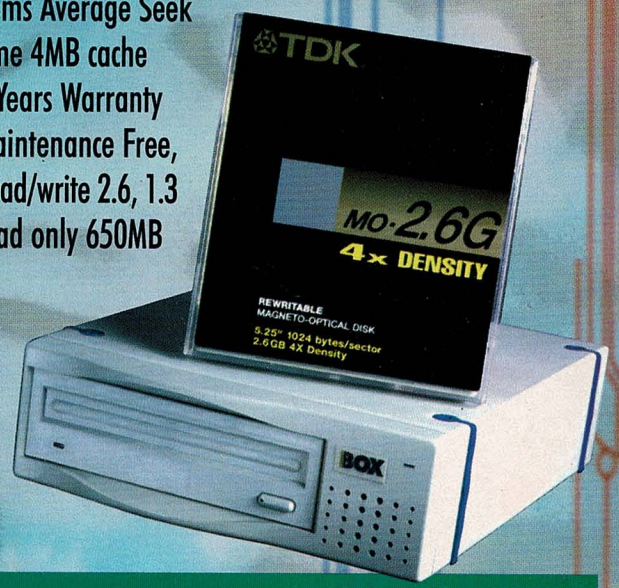

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MAC&MORE

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Genesis MP 600

DayStar ● MP 600, £11,397 ● MP 528, £9,281

...AND THERE'S MORE...

DayStar distributor Computers Unlimited is currently offering MP machines which have both 32Mb of RAM and a 2Gb hard disk. With these extras, the MP 600 costs £12,924 and the MP 528 weighs in at £10,809.

DayStar's multiple-processor Mac is a monster, and we're not kidding. Standing over 54cm high, 21cm wide and 56cm deep, the Genesis MP 600 dwarfs every other Mac and clone. Buy two of these and a plank of wood and you've got an executive desk. The Genesis MP's case is made of hefty steel and you'll need a crane to lift it out of its packaging and a forklift to park it next to your desk.

The Genesis MP is available in two versions: the MP 600 and the MP 528. We tested the MP 600, which sports four PowerPC 604 processors running at 150MHz. The MP 528 offers a similar configuration running at 132MHz.

Around the back, there's a power socket, monitor socket and ports for external SCSI, 10BaseT and AUII EtherNet, modem, printer port, Apple Desktop Bus, headphone and microphone. Four thumbwheels on the back enable you remove one side of the casing, exposing the motherboard and all the slots. The side panel has a lock on it to prevent thieves from pinching the massive amounts of RAM and large numbers of PCI cards you can squash inside this monster.

Inside the leviathan case lurks an equally leviathan daughterboard of DayStar's own design, since adopted by Apple for use in future multiple-processor Macs. It's much larger than the standard PCI PowerMac daughterboard and is equipped with a huge heatsink. Also inside, you'll find a quad-speed CD-ROM drive, six PCI slots, 12 DIMM slots, a spare 5.25-inch drive bay and an incredible seven 3.5-inch drive bays.

The base model comes without either RAM or a hard drive; the idea is that you can customise your machine and get the memory and storage sizes you need. Basic set-ups are also offered by the distributor (see the margin note on the left). The 12 DIMM slots enable you to expand the MP 600's memory to a massive 1,536Mb of RAM. Its 512K Level 2 RAM cache is soldered to the motherboard, so can't be expanded. On a machine where all the stops have been pulled out to give you maximum power, this is a glaring anomaly.

Once fired up, the computer is incredibly noisy because of the three six-inch fans required to keep the processors and power supply cool.

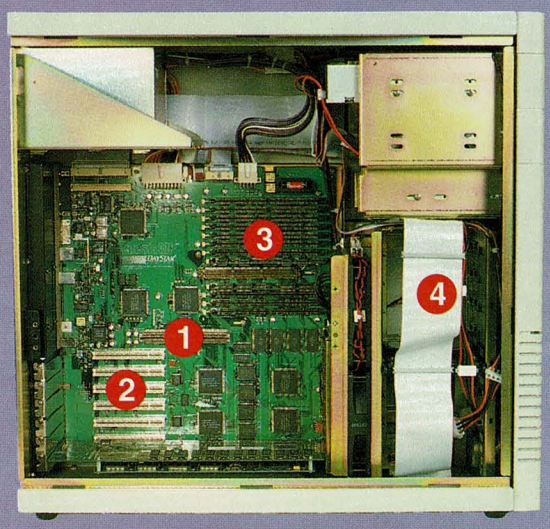
The MP 600 is marginally slower than a 9500/150 for most tasks. This is because at present only a few programs can access the other three processors (see page 52 for details). In *Photoshop*, the MP 600 was faster on most functions, knocking a few seconds off each of the major filters. It isn't until you start using the MP-accelerated plug-ins, though, that it really takes off.

On our test scan, the Genesis blasted through a ten-pixel **Radial Blur** in one minute and 34 seconds, compared to four minutes and 15 seconds on the 9500/150. Other MP *Photoshop* plug-in filters such as **Lens Flare**, **Pointillize**, **Wind** and **Crystalize** can be applied typically between two and three-and-a-half times faster than they are by the 9500/150. If you're working on very large images of 100Mb or more, that's quite a time saving. But the rendering test in *Strata StudioPro MP* took a disappointing two hours and 50 minutes on the MP 600, compared with 25 minutes on the 9500/200.

Whether you think the Genesis MP is worth buying depends on what you intend to do with it. Costing as much as a family car, it's out of reach for most people, and unless you're doing very specific types of work – for example, large *Photoshop* filters – you won't harness its full potential.

DayStar's Genesis MP: is four times as many chips overkill?

HEART OF THE MATTER



1. Daughterboard slot: the Genesis MP 600 uses a much larger daughterboard than Apple's machines (twice the size) to accommodate the four processors. We had to take it out so you could see the rest of the machine!

2. PCI expansion slots: no less than six of them!

3. DIMM slots: the MP 600 has 12 DIMM slots that will take 128Mb DIMMs, enabling you to expand it to 1.5Gb of memory.

4. Drive bays: you can pack seven 3.5-inch drives in here, and there's space for two 5.25-inch drives (our test unit had a CD-ROM drive occupying one of these).

PowerMac 9500/180MP

Apple ● £4,595

Not content with producing a 200MHz 9500, Apple has produced a 180MHz version with not one but two 604e processors. The 9500/180MP is identical to the 9500/200 except for the processor daughterboard. Instead of a single chip on the daughterboard, there are two 604e chips running at 180MHz each.

The board is based on DayStar's nPower design (soon available as a separate card – see News, page 19) and has been adopted by Apple for use in the 9500/180MP and future multiple processing Macs. It's an impressive piece of technology and makes DayStar's older four-processor board look positively clunky.

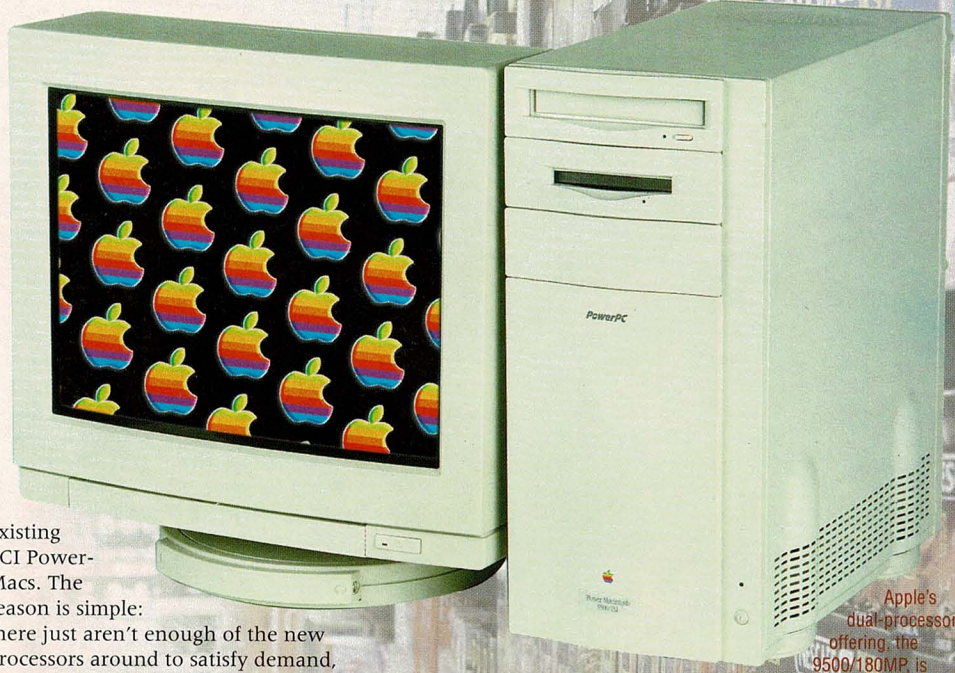
Under the heatsink lie the two 604e processors, which are much smaller than the 604 processors used in previous PowerMacs and the DayStar Genesis MPs. Because the processors are smaller, they don't generate as much heat, so the size of the heatsink has been substantially reduced. So the daughterboard doesn't need to be as big as it is in the Genesis MP.

The MP daughterboard is in fact exactly the same size as the single-processor daughterboards used in the 7600, 8500 and 9500 PowerMacs. You can actually swap the daughterboards in these models for the multiple-processor one. All you then need is the MP Library for the System Folder, and off you go. Apple says that within the next year it should be perfectly possible to fit four processors onto the same-sized board. Before you get your hopes up, though, Apple has no immediate plans to release multiple-processor daughterboard upgrades for existing PCI PowerMacs. The reason is simple: there just aren't enough of the new processors around to satisfy demand, so most of them are destined to be fitted to Macs, not upgrade boards. Likewise, the 9500/180MP runs at 180MHz instead of using the 200MHz chips found in the 9500/200 because there simply aren't enough of the faster chips to go around. Faster MP boards will be available in the future as chip makers IBM and Motorola ramp up the production process.

It's very difficult to gauge the overall speed of the PowerMac 9500/180 MP because there are only certain applications that you can use with the second processor. For most purposes, it's no faster than a straight 9500, but when it comes to applications such as *StrataStudioPro MP* and *Photoshop*, the second processor kicks in and really starts to fly.

We tested a pre-production version of the 9500/180, and Apple says it might get slight tweaks before it becomes widely available, so it's possible the final machine may be slightly faster than the one we saw. Based on our provisional tests, the 9500/180 is around 8% slower than a 9500/200 for non-MP applications, and 38% faster on MP-accelerated *Photoshop* filters. Our test render using *StudioPro MP* took a scorching 17 minutes and 24 seconds to complete.

If you need the fastest possible Mac for demanding graphics work, the 9500/200 looks like the one you want.



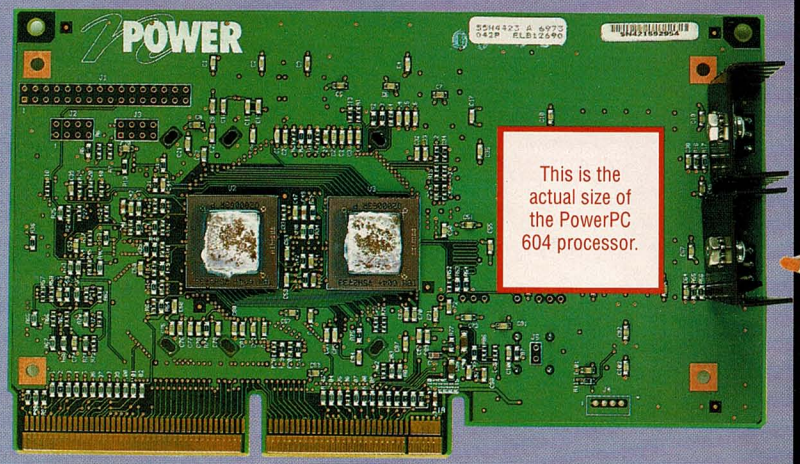
Apple's dual-processor offering, the 9500/180MP, is really rather nippy.

NO-SCORE DRAW

We haven't given ratings to the MP Macs for three reasons: first, there's no MP-aware benchmarking test software to measure how fast they really are; second, the lack of MP software for the time being makes it impossible to assess their actual relative performance; and third, the 9500/180MP we tested was only a pre-production unit and might not give a fair indication of what you can expect from units you'll be able to buy.

TWO IS BETTER THAN ONE

Inside the PowerMac 9500/180MP you'll find a slightly different processor daughterboard from the 9500/200. The photograph on the right is an actual-size shot of a early production model, so it might still change slightly by the time it hits the shops, but you can clearly see the two 604e processors. These would normally be hidden by a heatsink (a finned lump of metal that dissipates heat). The box on the right shows the size of the 604 processor, the 604e's predecessor. As you can see, the new chips are substantially smaller. This means they can run faster and generate less heat. Packing two or more processors on one board means more computing power than one chip could hope to provide.



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How fast is MP?

So multiple processing is where it's at, eh? So just how fast are these new machines? Pretty bloody quick...

For the multiple-processor Macs, we had to vary our tests slightly as there is no benchmarking software currently available that can test MP performance. For the 9500/180MP and the DayStar Genesis MP 600, we used *Photoshop* with MP-compliant plug-in filters, and an early version of *Strata StudioPro MP.*

Our MP tests give you a good indication of the kind of performance you can expect, but currently there simply isn't enough MP software available to test these Macs for a wide variety of different uses. This will change rapidly as more MP Macs and upgrade boards become available.

So are MP machines worth the money? That depends entirely on what you are going to use them for. It's a fairly safe bet that you're not going to fork out over £4,500 just to play *Marathon* on one of these. Buying one of these for games is rather like nipping down to the shops in a Formula One racing car – very flash, but it doesn't hold much shopping and everyone thinks you're a pretentious prat. These Macs are for serious graphics work and that is reflected in their prices. For day-to-day use, you won't get any appreciable speed gain from a multiple-processor machine. It's only when you get into the really processor-intensive tasks that the extra processors kick in and the Mac goes supersonic, so to speak, whereas the 9500/200 is fast all the time. Similarly, even if you do work with large graphics files, you've got to be getting through an awful lot of them in a day to make such an investment pay off. The area MP Macs are best suited for is 3D work, where the extremely complex mathematics involved in creating ambitious work makes heavy demands on the processor. A second chip here to share the workload makes all the difference, and could save you hours in rendering time.

Having said all that, there's little doubt that multiple processing will creep down the range and become more affordable until it's within almost everybody's reach. With four companies already fighting to make their computers the fastest on the market, and more poised in the wings, competition is stiff. The edge that multiple processing offers is too good to give up. In the eternal race for more speed and power, multiple processing is fast, sexy and easy to manufacture, now that a standard has been set.

For the moment, we've assessed the MP Macs on their average performance, to give you a rough indication of how much faster they are than single-processor Macs. It is important, though, to remember that raw speed is not the only consideration.

ZOOM...!

Suppose money was no object and you could stuff one of the MP Macs with loads of RAM. How fast would it be then? We thought we should find out, so we stuck 168Mb of RAM into the 9500/180MP and asked it to render a very complex 3D model (14.5Mb worth) at 4,000 x 2,853 pixels, anti-aliased. The actual render is shown in the 'Anatomy of a PowerMac' box on page 37. The 9500/180MP took an speedy one hour and 20 minutes. We then took the resulting image into *Photoshop* and tried a four-pixel Gaussian Blur on it, which it rocketed through in only eight seconds. Fast? You bet it is.

HOT CHIPS

New processors in the PowerPC line are due over the coming years. See this issue's News, starting on page 19, for the latest details.

MULTIPLE PROCESSORS – THE RESULTS

To test multiple-processor performance, we used *Photoshop* and a beta version of *Strata StudioPro MP.* Although all of the Macs will perform faster if given more RAM, as you'd find in a professional graphics studio or video editing suite (see the 'Zoom...!' box), we limited the amount of RAM to test both the processor and disk performance. This is a much more realistic scenario, and gives a better indication of the MPs' overall performance rather than just their raw CPU power. All the tests were conducted with 48Mb of RAM installed in each machine, 40Mb of which was allocated to the *Photoshop* software.

As you can see, in our tests the 9500/180MP came out tops for most functions. The Genesis MP 600 was a little disappointing, and produced the same results after running the same tests four times. It is important to remember, though, that the Genesis MP 600 uses the older 604 processor at 150MHz, while the 7600, 8500 and the 9500s (including the MP model) use the new 604e processor at higher clock speeds, with improved addressing and larger on-chip caches – two at 32K as opposed to two at 16K on the MP 600.

Photoshop tests	**Genesis MP 600**	**9500/180MP**	**9500/200**
Open 20Mb Photoshop file:	8s	5s	8s
Four-pixel Gaussian blur	23s	4s	14s
180° rotate	18s	14s	11s
Unsharp mask	22s	12s	4s
Sharpen more	20s	13s	16s
CMYK to RGB conversion	11s	12s	15s
Colour half-tone	2m 9s	1m 23s	1m 12s
Brightness/contrast	11s	8s	8s

Photoshop with MP plug-ins (1,200 x 1,186 file)	**Genesis MP 600**	**9500/180MP**	**9500/200**
Radial Blur (ten pixels, best)	1m 34s	20s	2m 55s
Crystalize (cell size ten)	7s	9s	15s
Pointillize (cell size five)	7s	9s	13s
Lighting effects (default)	4s	4s	5s
Wind (wind, left)	4s	3s	8s
Wind (stagger, left)	6s	6s	11s

StudioPro Blitz render	**Genesis MP 600**	**9500/180MP**	**9500/200**
Render model (640x480):	2h 50m 29s	17m 24s	24m 59s

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POWER MAC RANGE

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8200/100 8MB RAM 1.2 GIG H DISK CD	£1375.00	£240.63	£1615.63
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16MB SIMMS	£99.00	£17.32	£116.32
32MB SIMMS	£200.00	£35.00	£235.00
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8MB	£169.00	£29.58	£198.58
16MB	£299.00	£52.33	£351.33

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1710AV	£700.00	£122.50	£822.50
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1.2GIG	£159.00	£27.88	£186.83
2GIG	£285.00	£49.88	£334.88
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8GIG	£POA	£POA	£POA
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POWERBOOK HARD DRIVES			
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105MB EXT.	£189.00	£33.08	£222.08
270MB INT.	£229.00	£40.08	£269.08
270MB EXT.	£299.00	£52.33	£351.33
EZ 135 EXT.	£99.00	£17.33	£116.33
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JAZ 1GIG EXT.	£409.00	£71.58	£480.58
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230MB EXT.	£350.00	£61.25	£411.25
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D2 4 SPEED		£169.00	£29.58	£198.58
NEC 6 SPEED		£299.00	£52.33	£351.33
APPLE 600E		£239.00	£41.83	£280.83
CD-WRITERS				
PINNACLE		£629.00	£110.07	£739.07
RICOH 2SPEED		£789.00	£138.08	£927.08
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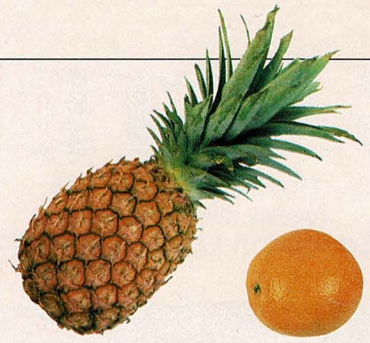
The results...



Crunch time! How do all the machines stack up? Which one is fastest, and which is the best value for money?

We used an exhaustive suite of tests to get the most accurate picture of how well each computer performed under a variety of conditions. For pure benchmarking, we used *Norton System Info, Speedometer 4.0* and *MacBench 3.0* to test each Mac's raw Central Processing Unit (CPU) and Floating Point Unit (FPU) processing power, disk access times and display performance.

We then compared these ratings with older Macs like the Mac II, Quadra 840AV, PowerMac 6100/60 and PowerMac 8100/80. Since hard disk technology moves slowly compared to processing power, and certain dealers fit some machines with different drives, we discounted the hard disk results, since they only confuse and pull down the overall rating. Likewise, display technology has remained consistent for some time and you can feel confident you'll get a decent monitor.

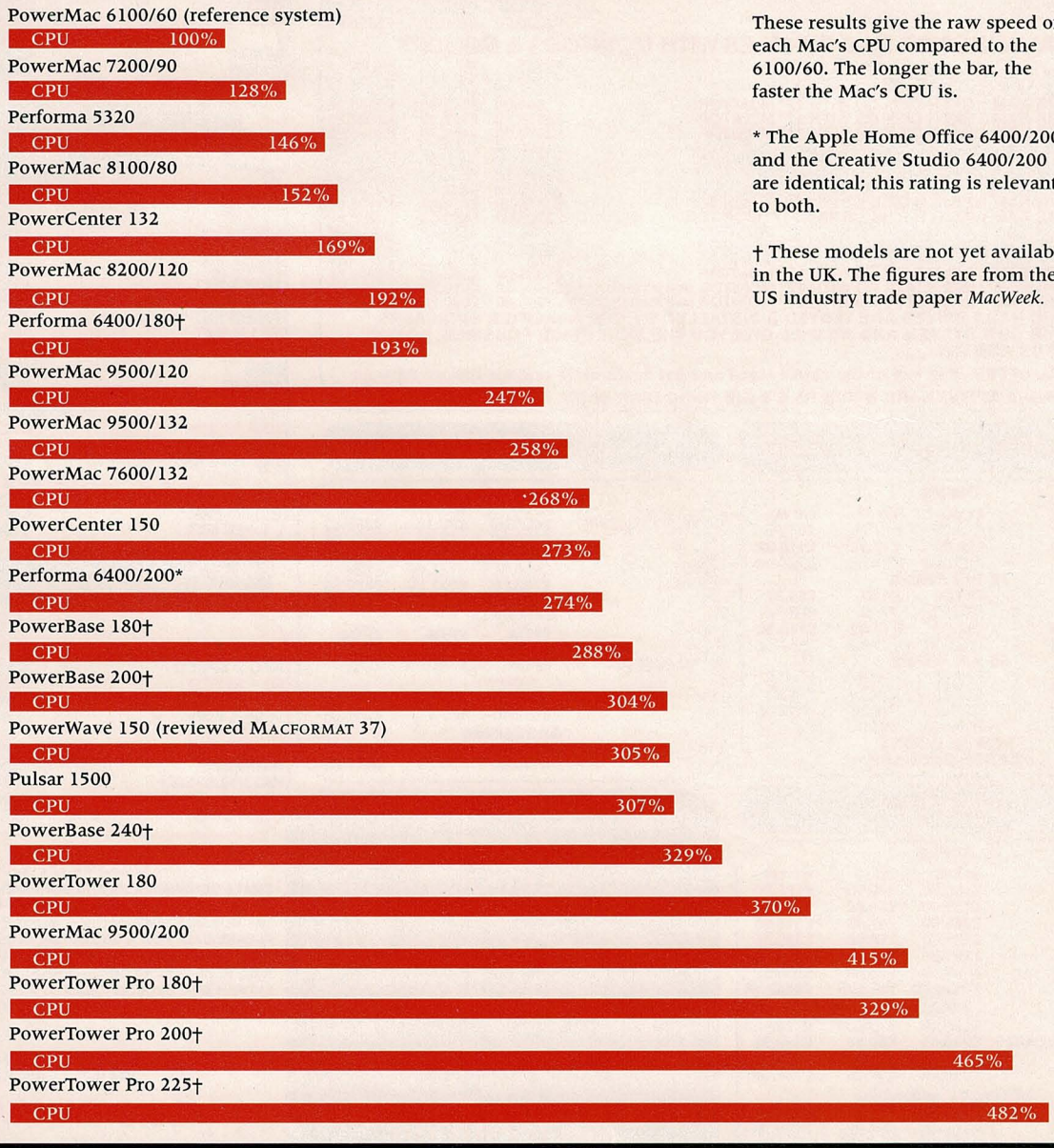
What we are left with, then, is the raw processing power that each Mac is capable of. These tests were performed on each machine exactly as it came out of the box. System 7.5.3 was installed, and a standard set of Extensions and Control Panels was used.

So these benchmarks are for each computer running in peak condition and without any additional memory or acceleration hardware. They give you the best indication of what kind of power you get for your money.

But how fast are these Macs in day-to-day use? We also ran a series of real-world tests to put each computer through its paces, timing how long it took to perform specific tasks.

For the real-world tests, we used a 20Mb *Photoshop* file and a simple *Strata StudioPro Blitz* 3D model. We fitted each Mac with 48Mb of RAM and

CPU SPEED RESULTS



These results give the raw speed of each Mac's CPU compared to the 6100/60. The longer the bar, the faster the Mac's CPU is.

* The Apple Home Office 6400/200 and the Creative Studio 6400/200 are identical; this rating is relevant to both.

† These models are not yet available in the UK. The figures are from the US industry trade paper *MacWeek*.

used the same basic set of Extensions and Control Panels on each. We also limited *Photoshop's* memory allocation to 40Mb of RAM. Ideally you should allocate Photoshop twice as much memory as the size of your file, plus the program's minimum memory requirement (10Mb on a PowerMac).

In the best-case scenario, for our 20Mb test file to run properly, we should have allocated at least 50Mb of memory to get *Photoshop* to run at its fastest. This assumes ideal conditions. However, in real life conditions are always anything but ideal. By limiting *Photoshop's* RAM allocation, we forced each Mac to spool data to and from the hard disk, as it would normally have to when working with very large graphics files.

Our *Photoshop* speed tests are both CPU- and disk-related, and provide the best overall indication of the Mac's performance in everyday use.

For the actual tests, we applied a number of common filters including **Gaussian Blur, Colour Halftone, Unsharp Mask** and **Sharpen More** to the test image. We also timed an RGB to CMYK conversion, a 180° image rotation and **Brightness** and **Contrast** adjustments.

What if you don't use *Photoshop* and want a real-world indication of how fast each Mac is? For this, we used *Strata StudioPro Blitz* to test each Mac's real-world processor power. Our test model was a simple texture-mapped tunnel with lighting effects and we timed how long it took each computer to render this anti-aliased 640 x 480 pixel image.

This test relies heavily on the Mac's FPU, so it's a good measure of each computer's number-crunching power. It illustrates the differences between the PowerPC 601, 603 and 604 processors. It's obvious the chip manufacturers learned a great deal from their experiences with the 601 – both the 603 and the 604 are much faster at this type of job.

After carefully poring over the results and assessing each Mac's performance, we produced the tables below. These results are from *MacBench* and illustrate each computer's CPU and FPU power. These are speed ratings for each machine's raw processing power, and are expressed as percentages relative to the 6100/60, the first ever PowerMac. The chart on page 37 showing the difference between older 68K Macs and PowerMacs is also based on the 6100/60's speed ratings, so you can compare your type of Mac with the new model you're most interested in.

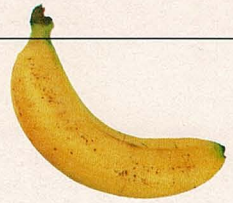
Our real-world tests mirrored these results quite closely, the only surprise being the FPU performance of the 8100/80, which is actually poorer than the 6100/60's.

FPU SPEED RESULTS

These results give the raw speed of each Mac's FPU. Again, the longer the bar, the faster the Mac. Ratings in pale blue are our estimates for models that haven't yet been released in the UK, based on the machine's configuration.

† These models are also not yet available in the UK. The figures are from the US industry trade paper *MacWeek*.

Continued on next page



And the winner is...

With such a broad range of new machines to choose from, which do you go for?

The winner is you. With such a broad range of Macs to choose from and more on the way, Macs can only increase in power and features and fall in price. All the systems we tested performed admirably well – some better than others, granted, but all of them are worth buying. You've now got to decide what you want to use your Mac for.

The stars of the show have to be Apple's new Performas, especially the Apple Creative Studio. They are more powerful and expandable than previous Performas, and come with more software than ever. The Performa range is a good choice, particularly if you work from home or need an all-round Mac for the family. We were particularly impressed by the new-look tower Performas, but these do come in at a steeper price.

On the PowerMac front, the lines are less well-defined. A glance at the spec sheets indicates that most of the clones run at similar levels to one or other of Apple's machines. For instance, the Pulsar 1500 and PowerCenter 150 would appear to be a 9500/150 in a different case. It's only when you look under the bonnet that things appear different.

The Power Computing range was a bit of a let-down when it came to the crunch, with the machines significantly slower than equivalent Apple models. Having said that, Power's range does come in a lot cheaper than any of the other Macs. If there's one thing to learn out of this, it's that specs are not everything, and you can't take clock speed as a measure of value. If you need reasonable power and the upgradability offered by a PowerMac but have a more restricted budget, then we recommend you look seriously at the PowerCenter series. They're not as fast as some of the other Macs, but they are cheaper and come with a fair degree of bundled software.

For out-and-out speed, Apple's Macs are currently the fastest, but this could of course change when Power Computing and Umax release their next ranges. At present, the PowerMac 9500/200 comes way ahead of the field in terms of power, but equally it's £950 more than Power Computing's PowerTower 180. Disregarding the bundled software, you get the same power per pound for the PowerTower 180 as the PowerMac 9500/200, but the latter has three more PCI slots.

For even more power, the 9500/180MP looks like good value for money. Okay, it's £500 more than the 9500/200, but for *Photoshop* and 3D tasks, it's as much as 40% faster.

We were impressed with Umax's Pulsar 1500. What made it stand out was the provision for fitting a second processor, thus future-proofing your investment. Although faster daughterboards will be available for most of the other Macs, Umax's approach means that it should remain slightly cheaper to upgrade in the future (assuming of course that the special Umax upgrade card won't end up costing the earth). For what you get, though, £3,642 for the Umax is a bit steep, given that for around £350 more you could get the 9500/200, which is about 35% faster. The extra processor slot in the Umax could, however, save you a lot of money in the long run.

As far as multiple processor Macs go, we'd hate to make any recommendation on the basis of preliminary tests. Until MP software becomes widely available, it's hard to gauge how much power you get for your money. As an overall package, we preferred Apple's 9500/180 MP. It's under half the price of the Genesis MP, and while it might not have quite the same power, at least it comes with a hard drive and some memory. If DayStar wants to keep a foot in the market, it'll need to shape up to the competition.

CONTACTS!

- **Apple Computer UK: 0800 127753**
- **DayStar Digital: contact Computers Unlimited, 0181 200 8282.**
- **Power Computing: contact MCM Distribution, 0171 723 7221.**
- **Umax: contact IMC Dsitribution, 01344 871300**

SPEC CITY: HOW THE CURRENT MACS COMPARE

Name	Chip	MHz	RAM	Max RAM	HD	CD	Upgrade?	Cache	VRAM	PCI	Monitor	Price
Performa 5400/160 FM	603e	160	16Mb	136Mb	1.6Gb	8x	No	None	1Mb	1	Yes	£1,703
Performa 5400/180 FM	603e	180	16Mb	136Mb	1.6Gb	8x	No	256K	1Mb	1	Yes	£1,997
Performa 6400/180 HO	603e	180	16Mb	136Mb	1.6Gb	8x	No	None	1Mb	2	Yes	£1,879
Performa 6400/200 HO	603e	200	16Mb	136Mb	2.4Gb	8x	No	256K	1Mb	2	Yes	£2,232
Performa 6400/200 CS	603e	200	24Mb	136Mb	2.4Gb	8x	No	256K	1Mb	2	Yes	£2,702
PowerMac 7200/90	601	90	16Mb	256Mb	1Gb	4x	No	None	1Mb	3	No	£1,292
PowerMac 8200/120	601	120	16Mb	256Mb	1Gb	8x	No	256K	1Mb	3	No	£1,851
PowerMac 7600/132	604e	132	16Mb	512Mb	1Gb	8x	Yes	256K	1Mb	3	No	£2,585
PowerMac 8500/180	604e	180	16Mb	512Mb	1.2Gb	8x	Yes	256K	2Mb	3	No	£3,630
PowerMac 9500/200	604e	200	32Mb	768Mb	2Gb	8x	Yes	256K	2Mb	6	No	£4,001
PowerMac 9500 MP	604e	180	32Mb	768Mb	2Gb	8x	Yes	256K	2Mb	6	No	£4,595
Umax Pulsar 1500	604	150	16Mb	1Gb	1Gb	8x	Yes	512K	1Mb	6	No	£3,642
PC PowerCenter 120*	604	120	16Mb	256Mb	1Gb	4x	Yes	None	1Mb	3	No	£1,879
PC PowerCenter 132*	604	132	16Mb	256Mb	1Gb	4x	Yes	256K	1Mb	3	No	£1,762
PC PowerCenter 150*	604	150	16Mb	256Mb	1Gb	4x	Yes	256K	1Mb	3	No	£1,997
PC PowerTower 180*	604	180	16Mb	256Mb	2Gb	4x	Yes	512K	1Mb	3	No	£3,050
DayStar Genesis MP600	604e	150	0	1.5Gb	0	4x	Yes	512K	N/A	6	No	£11,397

Upgrade: is CPU upgradable? PCI: number of PCI slots. FM: Family Mac. HO: Home Office. CS: Creative Studio. * Keyboard not inc.

Coming soon: more Macs

The surge of new Macs doesn't end there. The choice just gets better as faster machines arrive shortly.

The Mac industry is picking up the malaise of the PC-compatible world, acquiring an unhealthy fixation on chip clock speeds and processor variations. However, you can't really blame the companies concerned for drawing attention to the way they're able to offer such incredible variety from the PowerPC chip. The PowerMac is in the healthiest state it's enjoyed to date, and even the cheapest of Mac-compatibles offers that certain oomph you wouldn't even have dreamt of a couple of years ago.

After its careful development, the PowerPC family tree is now bearing fruit of the most spectacular kind with super-fast chips, meaning that firms are having to work hard to keep up with the constant changes.

The most bullish of the clone makers is Power Computing, working aggressively to maintain its lead in the clock-speed race. While you'll still be able to buy the PowerTower 180 and 200 machines for a while, they've already been officially replaced by the PowerTower 180e and 200e, similar machines but with 604e chips rather than 604s. The PowerTower 166 does however remain in the range.

Both new PowerTower computers feature 16Mb of RAM, a 2Gb hard drive and a quad-speed CD-ROM drive; the 180e costs $3,295 (£2,170) while the 200e is $3,595 (£2,363).

But these are just the aperitif for the beef of the PowerTower Pro series, which is going to be a number-lover's delight with the biggest and best processors you can get. The Pro is about having the best of everything, with the fastest chips and CD-ROM drives working with a powerful graphic accelerator card. Top of the heap is the $4,995 (£3,290) PowerTower Pro 225, based on a 604e chip running at 225MHz. No other Mac maker is preparing to offer a single-chip machine this fast, but these computers are likely to be in short supply for a few months until the chip-making process gets up to speed.

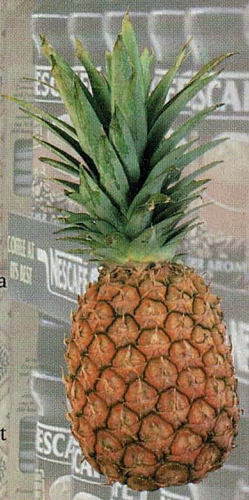
Other PowerTower Pros include the 180 and the 200, priced at $4,195 (£2,760) and $4,495 (£2,960) respectively. All these machines have 1Mb caches to make them run even faster, and six PCI slots.

Umax continues to fill out its range with enhanced versions of its Pulsar computers, which arrive in the UK early in September. The Pulsar 1800 should cost around £3,650; it goes beyond the 1500's 604 chip to offer a 604e running at 180MHz. The Pulsar 2000 makes this chip a 200MHz version for around £3,300.

DayStar's specialisation in multiple processors offers the ultimate in power for graphic artists and multimedia studios. Now the existing Genesis MP 600 is joined by three new models. As before, and despite the deluxe status of these models, they will actually be sold as the most basic of machines without even RAM or a hard drive. This is so you can buy a custom computer for your own use, taking RAM up to a mind-boggling 1.5Gb if you feel the urge.

First to arrive in the UK is the Genesis MP 720+, which is due any day now. Where other computers offer a mere single 604e chip, the 720+ gives you four, each running at 180MHz. The cost of the basic unit is $8,499 (£5,600).

The MP 360+ is due in the UK in early September and becomes the starter model of the range. But with two 180MHz 604e processors for $5,499 (£3,620), it's not exactly a starter in the same vein as Apple's Performa. Also out in September, the Genesis MP 800+ will assume the position of the fastest Mac you can buy with four 604e chips clocking in at 200MHz each. Look for the price of the MP 600 to drop, as the MP 800+ becomes the most expensive Mac you can buy at $9,999 (£6,580). **MF**



How this autumn's Macs will shape up

Name	Chip	MHz	RAM	Max RAM	HD	CD	Upgrade?	Cache	VRAM	PCI	Monitor	Price
Genesis MP 360+	2x604e	180	0	1,500Mb	0	TBA	Yes	512K	N/A	6	No	$5,499
Genesis MP 720+	4x604e	180	0	1,500Mb	0	TBA	Yes	512K	N/A	6	No	$8,499
Genesis MP 800+	4x604e	200	0	1,500Mb	0	TBA	Yes	512K	N/A	6	No	$9,999
PowerBase 180*	603e	180	16Mb	160Mb	1.2Gb	8x	Yes	256K	2Mb	3	No	$1,495
PowerBase 200*	603e	200	16Mb	160Mb	1.2Gb	8x	Yes	256K	2Mb	3	No	$1,795
PowerBase 240*	603e	240	16Mb	160Mb	1.2Gb	8x	Yes	256K	2Mb	3	No	$2,195
PowerTower 180e	604e	180	16Mb	512Mb	2Gb	4x	Yes	512K	2Mb	3	No	$3,295
PowerTower 200e	604e	200	16Mb	512Mb	2Gb	4x	Yes	512K	2Mb	3	No	$3,595
PowerTower Pro 180	604e	180	16Mb	1,024Mb	2Gb	8x	Yes	1Mb	8Mb†	6	No	£3,754
PowerTower Pro 200	604e	200	16Mb	1,024Mb	2Gb	8x	Yes	1Mb	8Mb†	6	No	£3,989
PowerTower Pro 225	604e	225	16Mb	1,024Mb	2Gb	8x	Yes	1Mb	8Mb†	6	No	£4,459
Umax Nova	603e	140	8Mb	TBA	1.2Gb	8x	TBA	256K	1Mb	2	No	£1,000
Umax Nova Pro	603e	180	16Mb	TBA	2.1Gb	8x	TBA	256K	1Mb	3	No	£1,400
Umax Nova Pro	603e	160	16Mb	TBA	2.1Gb	8x	TBA	256K	1Mb	3	No	TBA
Umax Pulsar 1800	604e	180	32Mb	TBA	2.1Gb	8x	Yes	512K	4Mb	6	No	£3,100
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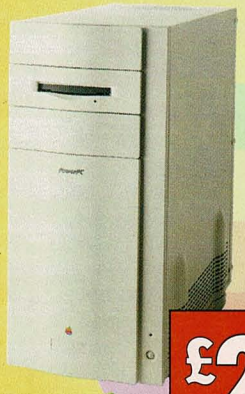

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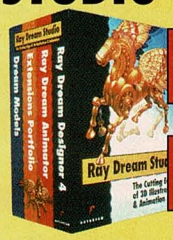

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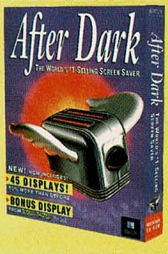

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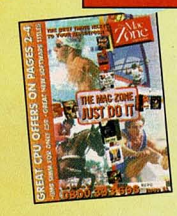

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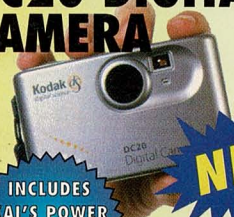

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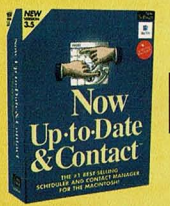

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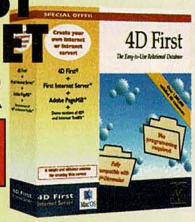

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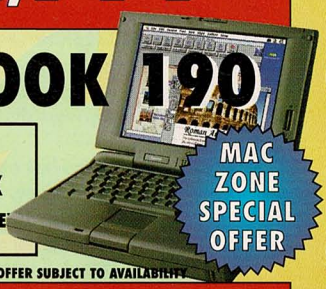

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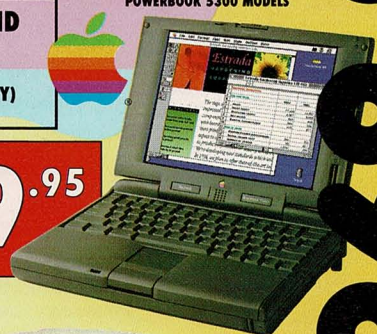

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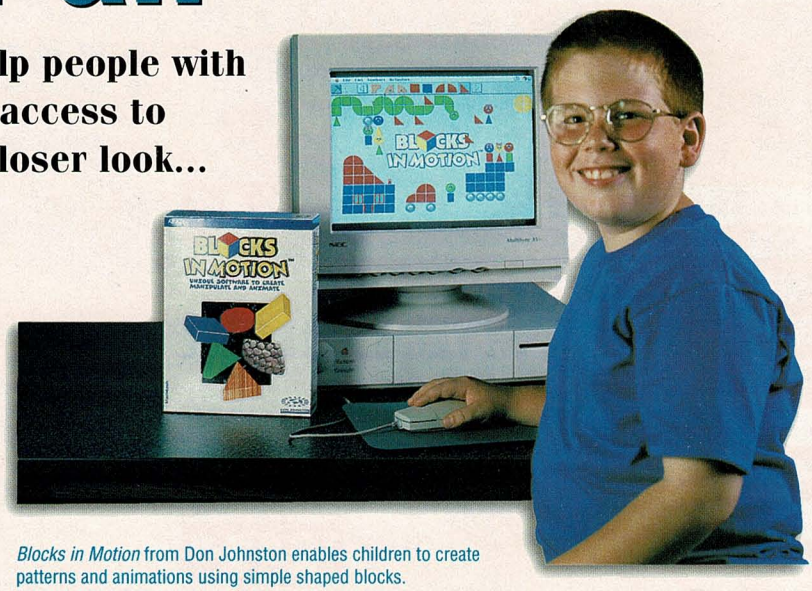
School for all

Macs are being used widely to help people with learning disabilities get the best access to education. Derek Smith takes a closer look...



Blocks in Motion from Don Johnston enables children to create patterns and animations using simple shaped blocks.

Over the last three issues, we've looked at a variety of ingenious software and hardware designed to make it easier for the disabled to use a Mac. The cutting-edge technologies involved could offer a glimpse of how we might all be using our Macs in the future. This issue, we focus on learning disabilities.

We don't use the term 'learning disability' because it's politically correct, but rather because it refers to any mental impairment that makes learning difficult. This can certainly include mentally disabled people who have a learning age younger than their actual years, but it also covers disabilities such as dyslexia.

Dyslexia of course has nothing to do with a lack of intelligence, simply a problem comprehending the written word. One of Future Publishing's Unix administrators is dyslexic. Intriguingly, while he would have trouble spelling 'publishing', he can type the complex and bizarre commands necessary to operate a Unix machine. This is because, instead of words, they are just strings of letters, not designed to be read out loud.

But putting £10,000 Unix machines into every school is not an option, so how can Macs be used to help? Often, the teaching of people with learning disabilities doesn't require special, distinct software. Rather, it's just a case of carefully selecting regular software which has certain essential qualities – the same qualities that make the software good for an average younger child. These include ensuring that you can work at your own pace, positive encouragement even if you get answers wrong, and being able to get good results early on to avoid disillusionment.

There are many knowledgeable companies that can help you select the right product. ABLAC, an educational software specialist, has many titles in its catalogue mainly covering English, maths, and art. Its experts will also be able to help you with any enquiries.

Another company, Dyslexia Educational Resources, doesn't produce any software of its own, but searches the portfolios of a wide range of other companies, discovering suitable products for almost every computer platform, including the Macintosh.

Don Johnston Special Needs Ltd is the UK branch of an American company which specialises in special needs hardware and software – and, unusually, focuses almost entirely on the Mac. The founder, Don Johnston, had to deal with his own learning disabilities at school, but overcame them to found this thriving company.

Among its titles is a series named *UKanDu*. These focus on teaching

DYSLEXIA

It's been discovered that changing the colour of text and its background colour can help people with dyslexia read text better on a computer screen. Combinations of red and green seem particularly effective.

With a thought to attracting children, keyboards and single switch devices are available in a variety of eye-boggling colours.

Single switch devices enable the severely incapacitated to use a Mac via a simple on/off control.

A WORD FROM THE WISE

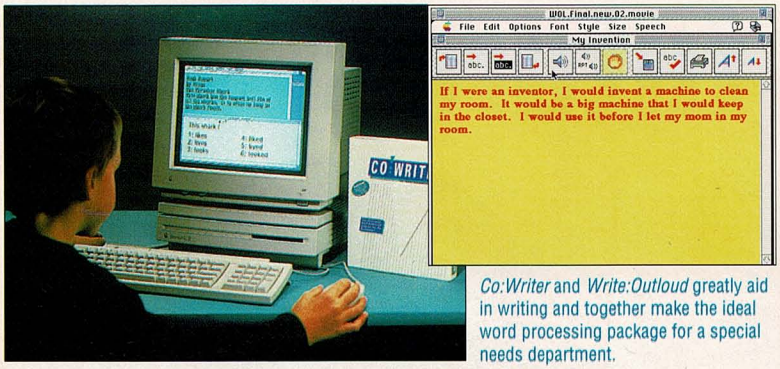
Each issue as part of this series we've asked someone with a disability to comment on their experience with their computers. Last issue Geoff Busby, who suffers from Cerebral Palsy, gave us an insight into how he controls his PowerBook 520 using a single-switch input device. This issue we'll close the series with a story from Norman Coombs PhD, Professor of History at Rochester Institute of Technology in the US.

Popular wisdom has it that computers are unfriendly, and that people who lack social skills hide behind them to avoid intimacy. I had a recent experience that shows the opposite can be true.

I am a blind professor and use a computer with speech output to provide me with more freedom and independence in my work than I had before the emergence of the personal computer. I can both write and read my handouts, letters and professional articles. Students now submit term papers by e-mail, and my computer reads them to me.

I also am involved in distance learning classes that use a computer conferencing system as a virtual classroom. Because, more than a decade ago, the computer served me as a communication tool, I understood its potential as a teaching tool. This was a decade before the Internet and telecommunications were daily items of news. It was the one time in my life that being blind gave me an advantage in 'seeing' this possibility.

I found students more open and willing to share using computer mediated communication. Shy students are less inhibited, and students claim that their comments are judged by the


WOL.Final.new.02.movie
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My Invention
If I were an inventor, I would invent a machine to clean my room. It would be a big machine that I would keep in the closet. I would use it before I let my mom in my room.

Co:Writer and *Write:Outloud* greatly aid in writing and together make the ideal word processing package for a special needs department.

Blocks in Motion offers you relatively straightforward options that make it easy to create fun animations with a minimum of trouble.

maths and English, and are designed to run on comparatively basic Macs, such as LCs. *Blocks in Motion* enables anyone to create shapes, animations and graphics, and doesn't require fine motor skills, making it ideal for children who also have physical problems. It teaches cause and effect, creative thinking and problem solving.

Don Johnston also produces *Write:OutLoud*, a talking word processor, which we've mentioned as being useful for anyone who suffers from a visual impairment. However, it also helps if you have English problems, as it can read out each letter and word as it is typed. Once you've finished typing, it can read your text back to you, highlighting each word as it is read. Even the spell checker talks to you! IntelliTools produces a similar program called *IntelliTalk*, which also has picture pull-down menus.

The Penny & Giles Rollerball and Joystick from Don Johnston are made to be especially rugged.

Of course, having educational software is no use if you have trouble using the Macintosh itself. As easy as the Mac is to use, it's still a comparatively complex piece of machinery. One item of hardware that can really help is a membrane keyboard.

Unlike standard keyboards, these flat slabs don't have separate keys, but rather a touch-sensitive surface, typically divided into a grid of 16 by 16 separate rectangles. These are blank, because you can program any rectangle to produce any keyboard input. The idea is to use a paper template that overlays the keyboard and has the appropriate buttons printed on it. A group of several rectangles can be given a single function, effectively creating a much bigger button.

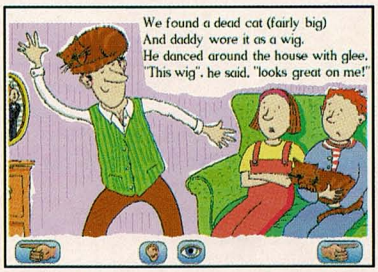
For example, you can buy overlays for some of the *Living Books* series. These bright coloured overlays have buttons on them similar to those you see on the screen. The idea is that some children find it easier to press a large button on a keyboard than to use the mouse to click on a small on-screen button.

Various companies, including SEMERC, produce software packages that enable you to create your own paper templates for such keyboards. So you could, for example, create an overlay for any piece of software. You could also create a template for a typing keyboard where the letters are in alphabetical order, rather than the somewhat confusing QWERTY order that most people are used to. For more information on touch-sensitive keyboards, contact The Concept Keyboard Company, IntelliTools, or Don Johnston – contact details are on page 66.

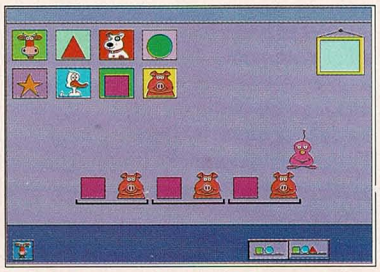
Continued on next page

TOUCH SCREEN

Last issue we took a look at touch screen technologies for regular desktop monitors. However, if you've got a PowerBook, then Mayer-Johnson have got a touch screen suitable for you.


We found a dead cat (fairly big)
And daddy wore it as a wig.
He danced around the house with glee,
'This wig', he said, 'looks great on me!'

Sherston Software provides a good range of basic literature software such as *Ridiculous Rhymes*. Designed for young children, it can also help people with learning difficulties.



Millie's Math House from Iona Software helps to teach basic mathematics in a fun environment which will encourage all children, including those with learning handicaps.

Overlay keyboards enable teachers and parents to configure the keyboard to suit an individual user's specific needs.

content and not by the appearance of the speaker. Even the role of the teacher becomes altered. The saying is that 'the sage on the stage becomes the guide on the side.'

The more open and egalitarian class structure is especially useful in discussions of sensitive topics. I had found that my regular classes on African American history almost never engaged in open and free discussions. For that reason, I began to require these regular classes to spend some time outside of the classroom in a computer conference discussion.

In a recent course in African American history when I required that part of our discussion take place in a computer conference, a deaf girl in the class almost dropped out because she was not a computer user. I had her come to my office and promised to teach her what she needed to know.

I typed on my computer keyboard, and she read the screen. She typed in her reply, and the computer read it to me. We worked together without an interpreter, and she quickly learned the few computer commands needed for the task.

At the end of the course, she returned for a chat over the computer keyboard. While she said she wanted to be sure she had done all that was required, it soon became clear that she really came to thank me. She said that the computer had opened many new doors for her, and she was happy I made her do it. Then, she put her head on my shoulder and gave me a hug!

That was the first time in over 30 years of teaching that I was hugged by a student. Now, don't tell me computers are unfriendly!

All our futures

So what of the future? What more can be done for the disabled, and how soon might the futuristic technologies involved become the mainstream for everyone, including the able-bodied?

In this series we've seen products that enable people with the most severe physical disabilities to control a Mac, such as the TongueTouch Keypad, which enables you to take full control of your Mac using just your tongue. But what if you don't even have that much control? What if your mind is active, but not your body?

The answer is to tap into the mind directly. It's a bit like virtual reality in reverse – and surprisingly, the technology already exists today.

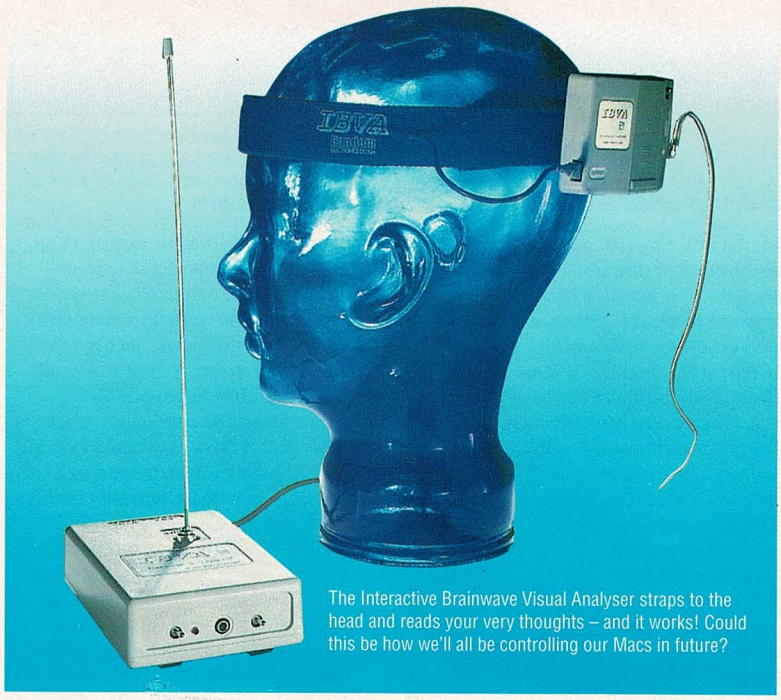
The intriguingly named Other 90% Technologies has developed a device called the MindDrive. This slips onto your finger, and its inventors claim it can read your thought signals just like a lie detector. Unfortunately, the MindDrive was not available for us to test, but its creators say it will cost around the £150 mark.

Feeling sceptical? Don't be. IBVA Technologies Inc has developed a similar device called the Interactive Brainwave Visual Analyser, which we have tested. This device straps to your head, with a number of electrodes that attach to the skin of your forehead. These read your brainwaves and send signals to a transmitter box positioned towards the back of your head. The signals are then sent to a receiver unit that plugs into the serial port in your Mac, which can be up to 30 feet away.

One of the supplied programs can convert this input into a three dimensional graph, showing your mind's activity across a range of brain wave frequencies. The amazing thing is that it works. You see distinct changes on screen as you relax, problem solve, try to remember something and otherwise change your state of mind.

So, by this time next year, will we all be thinking to our Macs? Sadly, probably not. The problem lies in the interpretation of this data – you can think words in your mind, but no program can make sense of the minute changes in brain wave patterns.

For now, computer control with the brain comes in very basic forms. By relaxing you can make a QuickTime movie play, then, by thinking hard about something, make it stop. This may not sound very useful, but it is already being used to help hyperactive children learn to control themselves and calm down. And bearing in mind that some physically disabled people currently control their Mac with single switch devices that only have two states – on or off – perhaps it won't be too long before a highly practical use is found for these mind reading devices.



The Interactive Brainwave Visual Analyser straps to the head and reads your very thoughts – and it works! Could this be how we'll all be controlling our Macs in future?

PERFECT COPY

Perfect Copy is an unusual program because it sets out to teach good grammar. It is designed for students to use it independent of teacher aid, so is suitable for classroom use. For more details contact The Literacy Development Company.

PREVIOUSLY...

This is the third part in our series on how tomorrow's technology is being used today to help the disabled get more from their Macs. If you missed either of the first two parts, in MACFORMAT 40 and 41, turn to page 128 for details of how to get hold of copies.

So what's next?

One man who uses a single switch is Geoff Busby, who gave us his insights into computer use and physical disability last issue. We finish with his thoughts on the future.

'So what of the future? In my opinion, note-pad technology such as the Newton will have tremendous potential, particularly in classrooms or business meetings. For example, a teacher could interface with a single pupil or the whole class – thus, little Tommy will not be able to daydream any more!

'More seriously, a deaf student or business person could communicate with a colleague in the same meeting and be aware of the information flow, inputting their own ideas at will.

'Interactive multimedia CD-ROMs afford the potential of vast amounts of visual and audible information, not to mention the ability to create such information or purely be creative.

'Virtual reality, I am sure, in the future will enable disabled people to have virtual experiences such as skiing and sailing, as interpreted by the film industry in *Total Recall*. What a pity they didn't use disabled people!' MF

CONTACTS

- **ABLAC 01626 332233.** Offers a wide range of educational software.
- **The Concept Keyboard Company 01962 843322.** Specialists in touch-sensitive overlay keyboards.
- **Don Johnston Special Needs 01925 241642.** Specialist in special needs hardware and software.
- **Dyslexia Educational Resources 0181 682 4522.** Produces a catalogue of educational software particularly suited to the dyslexic.
- **iANSYST 0171 607 5844.** Educational and special needs software for a range of computer formats.
- **IBVA Technologies (US) 00 1 212 754 4282.** Produces a head-mounted device that senses brain wave patterns.
- **IntelliTools (US) 00 1 415 382 5959.** Produces a special range of touch-sensitive keyboards and keyboard overlays.
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- **The Literacy Development Company 01277 229093.** Provides programs that focus very closely on improving literacy.
- **Mayer-Johnson (US) 00 1 619 550 0084.** Special needs printed and computer resources, including a dedicated speech synthesizer.
- **The Other 90% Technologies (US) 00 1 415 904 7070.** Producer of the MindDrive, a cheap input device designed to read your thoughts.
- **Queue (US) 00 1 203 335 0906.** A large range of educational software and CD-ROMs.
- **Rickitt Educational Media 01458 253636.** Offers general educational software as well as special needs products.
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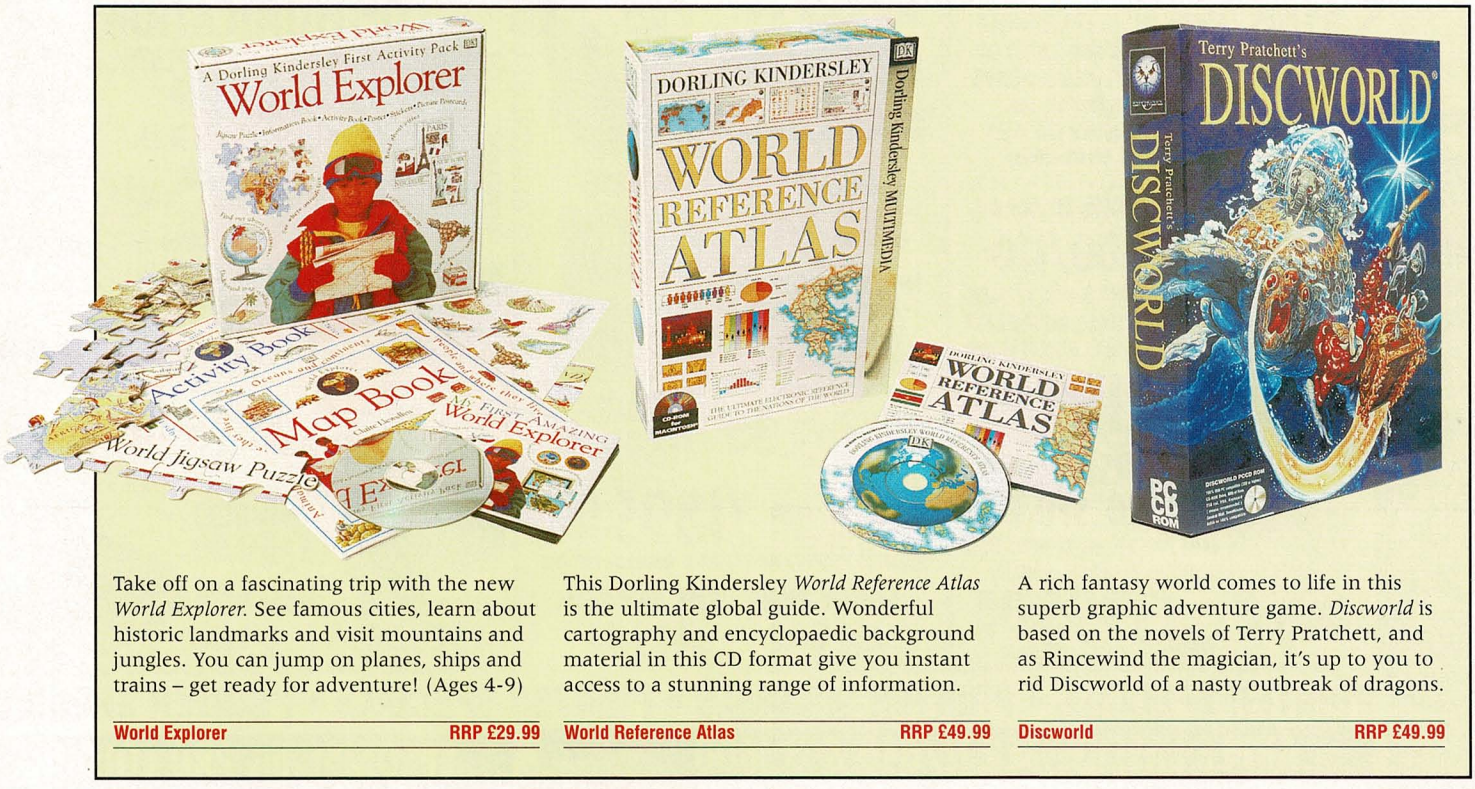

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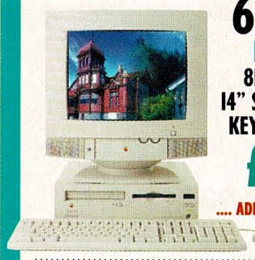

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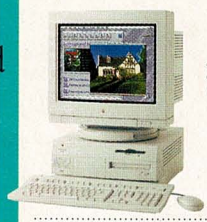

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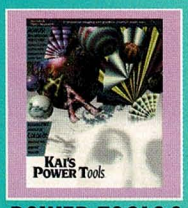

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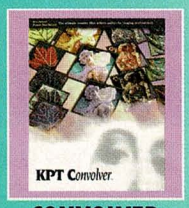

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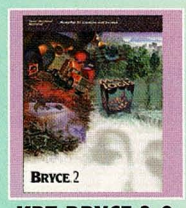

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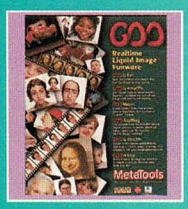

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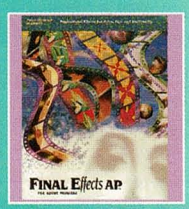

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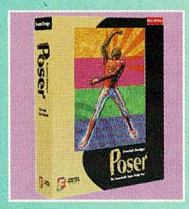

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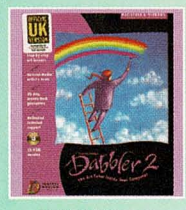

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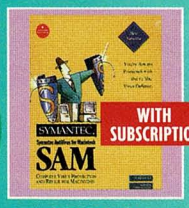

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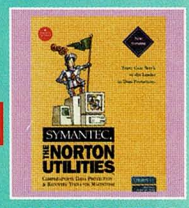

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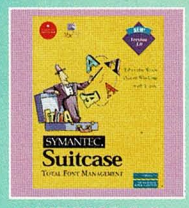

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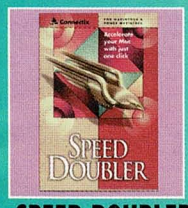

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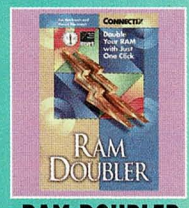

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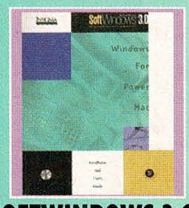

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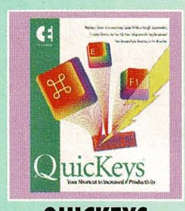

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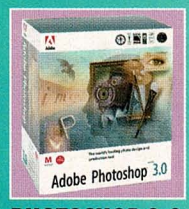

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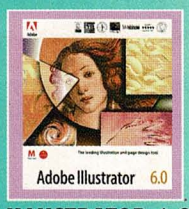

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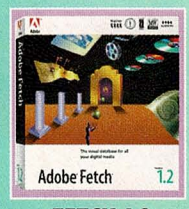

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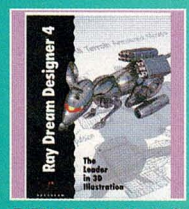

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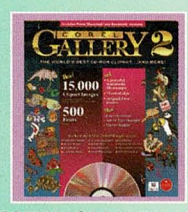

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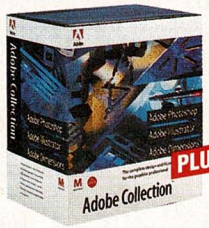

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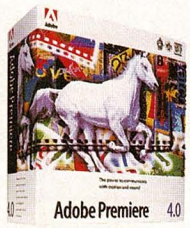

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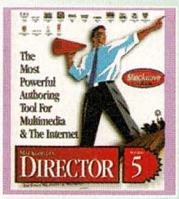

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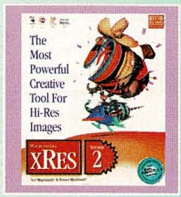

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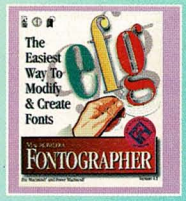

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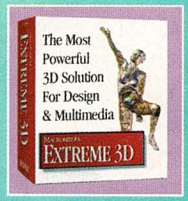

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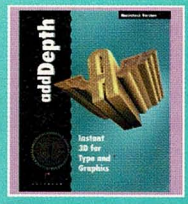

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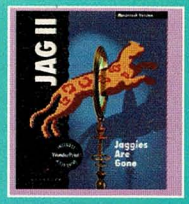

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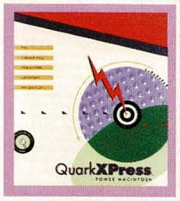

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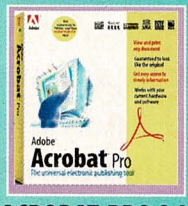

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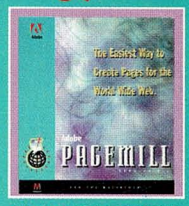

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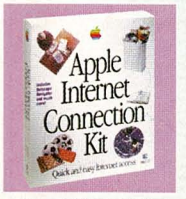

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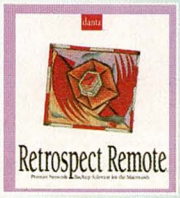

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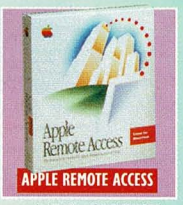

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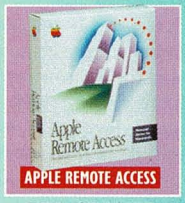

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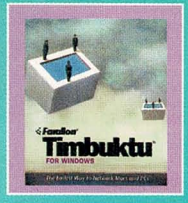

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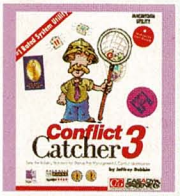

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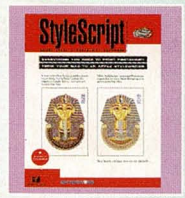

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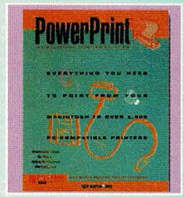

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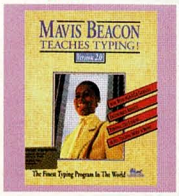

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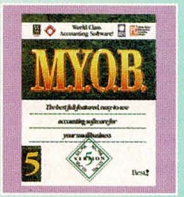

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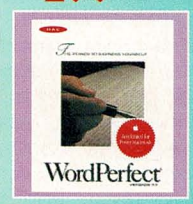

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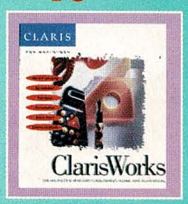

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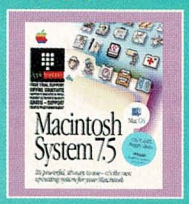

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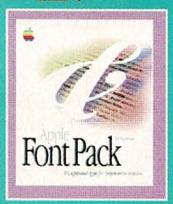

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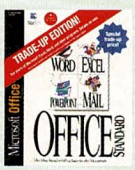

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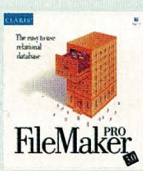

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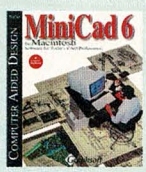

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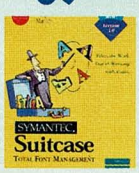

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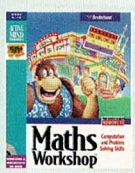

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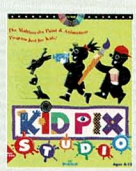

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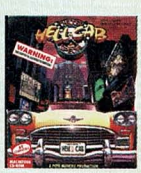

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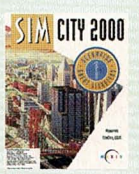

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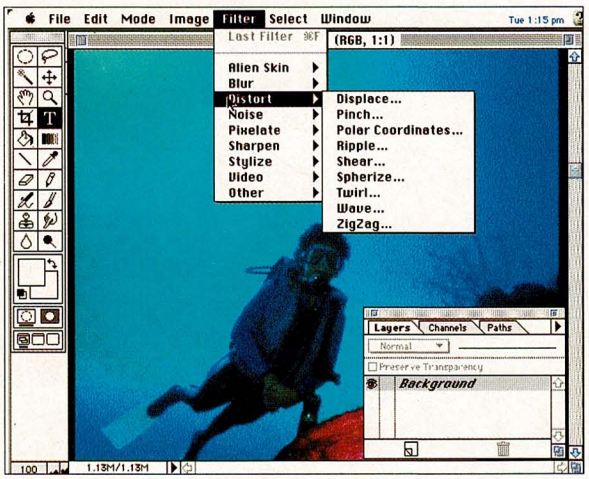
Graphics managers

If you get your hands on the right software, you can tackle almost any graphics file. Rod Lawton looks at the tools of the trade and explains how to use them.



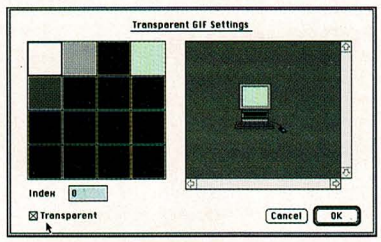
If you can afford it, *Photoshop* will open all the files you're likely to encounter. You can then use it to adjust colours and resolution or apply a wide range of special effects. It can also export images in any graphics format you're likely to want.

There are two secrets to handling graphics files. The first is to know what you've got, and the second is to know what to do about it. After reading the tutorials in the last two issues, you should be able to figure out what sort of file you've been sent and you've probably got a few ideas about what you can do with it. For this you need the right software, so here's MACFORMAT's short-list.

We're converted!

We've been banging on about it all through this series, but *GraphicConverter* really is a miraculous piece of software. First, it's affordable and readily available. Second, although it doesn't translate vector data very well, there is no bitmap image file which won't succumb to its import filters (it will also import bitmap data from meta-files, and that's often enough in an emergency). It's especially good at preparing images for Web pages because it can apply 'transparent' colours to GIF images, making irregularly-shaped logos look like cut-outs against the plain background of a Web page.

GraphicConverter is so good it's a standard fixture on the MACFORMAT Cover CD each month. If you use it, though, remember to pay its author, Thorsten Lemke, the shareware fee of $30 US. It's worth every penny – er, cent. If he stopped developing new versions, thousands of Mac users, both amateur and professional, would be in big, big trouble...



Web page creators will love *GraphicConverter's* 'transparent GIF' feature. It enables you to make backgrounds transparent for a cut-out effect.

Heavyweight champ

Photoshop costs plenty, but is the ultimate image-editing application. It can import files in a wide range of graphics formats, including PC PCX, Amiga ILBM, GIF, TIFF and many more. Interestingly, it can also open EPS files, rasterising the PostScript information into a high-resolution bitmap – the only way you can edit an EPS file. (You should also take a look at *EPStoPICT v1.2.1*, reviewed in the shareware section of MACFORMAT 41.)

The EPS format is the only reliable way of transferring vector information from one computer platform to another, but these files are created by exporting PostScript data. Once exported, PostScript can't be reverse-engineered back into the original editable graphic, any more than you can squeeze paint back into its tube.

Photoshop is vital for professional DTP, where colour TIFFs must be converted into CMYK colour for four-colour printing. It's also widely regarded as the best image manipulation program, bar none.

Get stuffed

The *StuffIt!* family comes from Aladdin Systems. It's a suite of compression and decompression applications which are indispensable, particularly if you're an Internet user. Files stored on the Internet are usually compressed, frequently encoded and often both.

The compression is necessary to group files together (many files can be stored in a single archive, which prevents them from getting separated) and to minimise both the space they take up on Web servers and the time it takes to download them.

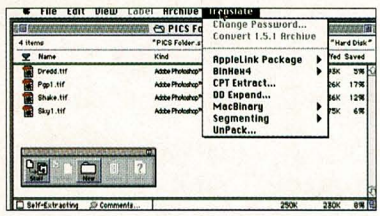
The encoding is necessary because the Internet's infrastructure prevents the transmission of standard Mac binary data. This has to be converted to BinHex format and, once you've downloaded a file, converted back.

Lastly, Usenet newsgroups are based on 7-bit ASCII data transfer, while data files are invariably 8-bit. A process called UUencoding translates 8-bit data into 7-bit files which can be attached to Usenet postings.

There's another format, too. On the PC, the most common compression format is **.zip**. You may find 'zipped' files on the Net, too, and although they will contain PC files, Mac applications can open many PC graphics files. So, you also need to be able to expand .zip files.

Fortunately, the freeware *StuffIt! Expander* can open both *StuffIt!* archives, which are almost universal on the Net, and files produced by its nearest rival, *Compact Pro*. It can also decode BinHexed archives (you must do this before you try to open them).

If you also get the shareware *DropStuff* with *Expander Enhancer*, you will



Aladdin Systems' *StuffIt!* family provides all the archiving, dearchiving and conversion functions you're likely to need.

META... WHAT?

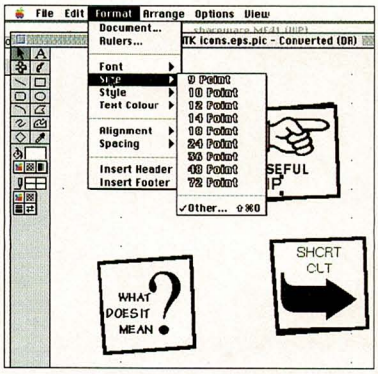
A 'meta-file' is one which can contain both vector and bitmap data. The most common meta-file formats are EPS (which can include bitmap previews of vector images) and PICT, which is a standard output format for both paint and drawing packages on the Mac.

NOT YOUR TYPE?

Fonts are only a problem with vector graphics, but they make up for it by being a BIG problem. Vector graphic formats economise on file size by identifying the fonts used within an image rather than incorporating their vector data. If the destination machine doesn't have those fonts, it is forced to substitute its own. This can be disastrous for images which rely on precise typography or carefully judged copy flow.

If you're in contact with the file's creator, and the graphic is an EPS, get them to convert any text in their original into outlines and re-export the EPS. This will convert the text into graphical shapes and solve the problem.

If you can't contact the original owner, or they can't do anything to help, you've no choice but to open the file in *Photoshop*, which will rasterise the PostScript information into a bitmap which you can edit using the paint tools. Alternatively, try *EPStoPICT v1.2.1* (Cover CD, MACFORMAT 41).



We haven't tried it on a wide range of files, but *EPStoPICT* may be your only chance to edit an EPS graphic properly.

also be able to translate UUencoded files and zipped PC files. Amazing. For more information on any of the *StuffIt!* range of software, call Aladdin Systems in the US on 001 408 761 6200 or visit its Web site at **http://www.aladdinsys.com/**

A cure for everything?

In this series we've taken a pretty hands-on approach to sorting out graphics files. There has been a minimum of theory and quite a few quick-and-dirty solutions. However, what works today may not work tomorrow. Software publishers are always pushing back the boundaries of 'standard' graphics formats and enterprising programmers are continually finding new solutions to old problems. Nevertheless, by now you should have a clear idea of the types of graphics you may encounter, special problems you face and some of the ways you can get round them.

If we find a better way of handling tricky graphics, or uncover a new problem waiting for a solution, we'll be sure to let you know. In the meantime, if you come across other useful solutions to graphics file translation problems, drop us a line and we'll pass the information on. **MF**

NOT YOUR TYPE?

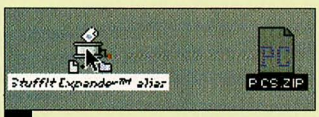
GraphicConverter can recognise and open all these files. Makes you feel rather humble, doesn't it?

8BIM – Photoshop (2.0)
AMBER ARR
ANI – Animated NeoChrome
Apple Preferred (IIgs)
BMP/RLE – Windows and OS/2 bitmaps
CGM – Computer Graphics Metafile
CGV – Calamus
CLP – Windows Clipboard
CT – Scitex
DCX – Some PCXs
DESR VFF
DL
Dr Halo
FITS – Flexible Image Transport System
FLI/FLC – Animator (Pro)
GATAN
GEM – GEM metafile
GIF – Graphics Interchange Format (CompuServe)
GRP
HP-GL/2 – Hewlett Packard Graphics Language
IBM-PIC
IC? – Imagic
ICO/ICN – Windows icon
IFF/LBM/HAM – Interchange File Format
ImageLab/Print Technik
IMG/XIMG – GEM Bit Image
IPLab
JPEG/JFIF
KONTRON
Lotus-PIC
MAC – MacPaint
MSP – Microsoft Paint
MSX, MSX2, MSX+
NEO – NeoChrome
P?? – Degas
PAC – STAD
PBM/PGM/PPM – Portable Bitmap
PCX – Paintbrush/SCR – ScreenCapture
PIC (32K)
PIC – PC Paint
PICS – PICT-Sequence
PICT
PICT from resource
PM
PNG
ppat – Pattern
PSD – Photoshop (2.5)
QDV – Giffer
RIFF – Raster Image File Format
RLE – Utah Raster Toolkit
SCX – ColoRIX
SGI – Silicon Graphics Image
SHP – LightingPress
SOFTIMAGE
SPC – Spectrum 512 StartupScreen
SUN – Sun Rasterfile
Super HiRes 3200
TGA – Truecolour File Format (Targa)
TIFF – Tag Image File Format
TN? – TINY
TRS-80
VG HB600
WMF – Windows Metafile
WPG – WordPerfect
X11 – Bitmap
XPM – ASCII Bitmap
XWD – X-Windows Dump

FROM ARCHIVE TO OUTPUT

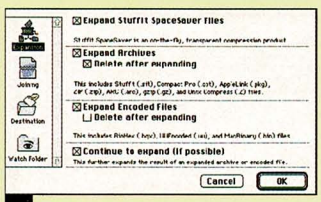
This is a typical story of ordinary DTP folk trying to output an Internet book in a world of conflicting platforms. The book was written on a PC and laid out on a Macintosh.

All went well until the approach of the final deadline, when the author needed to send in some replacement screen shots. These were sent as an e-mail attachment and arrived as a .zip archive. This is the worst possible scenario: files of an unknown format, created on a different platform and archived using a non-Mac compression format...

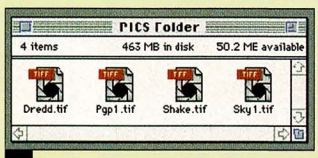


1 What have we here? Fortunately, the .ZIP suffix tells you it's a .zip archive from a PC. Duplicate the file now and work on a copy – if anything goes wrong you'll be able to return to the original.

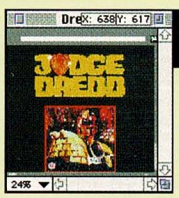
You'll need a copy of *StuffIt! Expander* which has been upgraded with *Expander Enhancer*. Simply drag the file onto the icon and watch it expand.



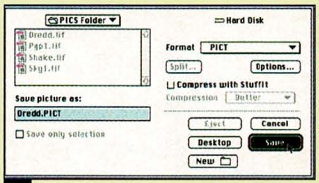
2 If you're unlucky, a PC archive will arrive without a suffix and *StuffIt! Expander* won't know what to do with it. However, *StuffIt!'s* **Preferences** window contains a list of popular suffixes you can try in turn – just add them to the filename.



3 Always try dragging the archive's icon onto *StuffIt Expander's* icon first, though – with luck, that will be enough to expand the archive into a folder full of files. So far so good – now you have to open them in a graphics application and work out what to do next.



4 Use the old favourite, *GraphicConverter*. You don't need to know the file type (even though we can see these are TIFFs) because if it's a bitmap, *GraphicConverter* will open it. Note that TIFF files aren't all the same – a variety of compression systems are used, and neither *ClarisWorks 4* nor *Color It! 2.3* would recognise this file.



5 Use *GraphicConverter* to change the image to a PICT so that you can work on it with a dedicated Mac paint package. If you want to change it to a greyscale image, now's the time to do it.

6 *Color It! 2.3* (available on the Cover CD and HD Disk of MACFORMAT 31) is also useful for changing images from colour to greyscale. It has a host of image manipulation gadgets and a quick and handy **Auto Contrast** function for adding bite to mono images.

7 The image has now been translated into a much more stable and usable format. One final thing you should check, though, is the resolution. The PICT format can support different resolutions, but the same doesn't necessarily go for Mac applications. *ClarisWorks'* **Paint** module is especially good at checking and changing resolutions. Here, we find that our image is actually 300dpi. Soon fix that...

Follow these instructions and you'll end up with a reliable PICT screenshot for importing into *QuarkXPress* pages. Finding the solution to graphics format problems is all about knowing the strengths and weaknesses of your software and choosing the right application for every job.

Digging for gems

ClarisWorks has a couple of very advanced word processor features that you may not have discovered yet. Derek Smith shows you how to exploit them.

You may be new to *ClarisWorks* or you may have been using it for years. Whatever you use it for, there are loads of hidden extras that you might not expect to find in your humble word processor. In part six of our series on the joys of *Works*, we look at the mysteries of outline paragraphs, an advanced feature usually only found in more expensive dedicated word processors, and discover how you can use libraries.

Outline overview

You can use outline paragraphs whenever you want to list topics and subtopics. For instance, if you were preparing notes for a presentation, you might have a series of 12 topics. Some of these may have subtopics, and you may wish to include further notes and references (effectively sub-subtopics).

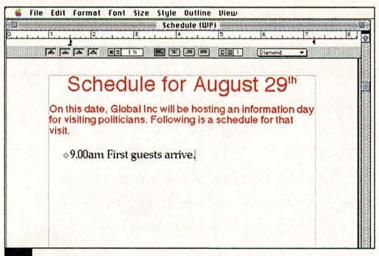
Outline paragraphs look similar to standard paragraphs. Main topics are indented a little, subtopics indented more, and notes indented yet further. Fine – but you could just use the normal indent tools in the ruler bar, so why should you bother to use special outline paragraphs?

It's like using tabs instead of the space bar to line up lists. The results are quicker, more accurate and easier to alter later. Using the outline method, you can also collapse your paragraphs to just display the main topics temporarily, then expand them to show both the main and subtopics, and finally expand them again to show the notes as well.

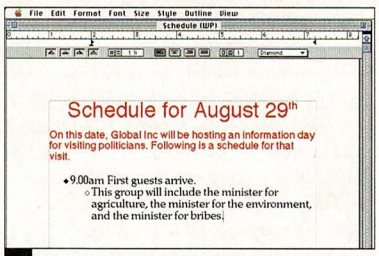
In earlier versions of *ClarisWorks*, outlines were an all-or-nothing feature where either every paragraph was an outline, or none was. This made the idea so clumsy and restricting as to be almost unusable. In *ClarisWorks 4*, outlines have just become another paragraph style.

And the best way to learn how to use outline paragraphs is actually to have a go...

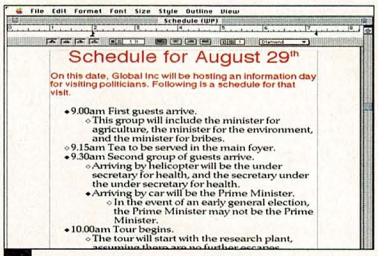
DRAG IT
You can move an outline paragraph up and down levels by dragging its label.


Schedule for August 29th
On this date, Global Inc will be hosting an information day for visiting politicians. Following is a schedule for that visit.
◦9.00am First guests arrive.

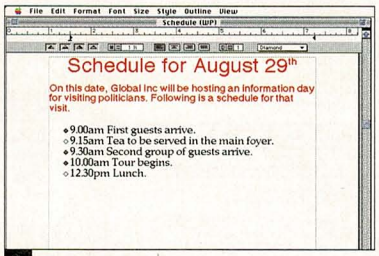
1 In *ClarisWorks 4* you can start with a normal document and standard paragraphs. When you want your first outlined paragraph, choose an Outline style from the **Stylesheet** or the ruler bar pop-up menu.


Schedule for August 29th
On this date, Global Inc will be hosting an information day for visiting politicians. Following is a schedule for that visit.
•9.00am First guests arrive.
◦This group will include the minister for agriculture, the minister for the environment, and the minister for bribes.

2 You can create another topic by pressing **[return]**, but instead we'll create a subtopic by selecting **New Topic Right** from the **Outline** menu. The next paragraph will be further indented to the right.


Schedule for August 29th
On this date, Global Inc will be hosting an information day for visiting politicians. Following is a schedule for that visit.
•9.00am First guests arrive.
◦This group will include the minister for agriculture, the minister for the environment, and the minister for bribes.
◦9.15am Tea to be served in the main foyer.
•9.30am Second group of guests arrive.
◦Arriving by helicopter will be the under secretary for health, and the secretary under the under secretary for health.
•Arriving by car will be the Prime Minister.
◦In the event of an early general election, the Prime Minister may not be the Prime Minister.
•10.00am Tour begins.
◦The tour will start with the research plant,

3 The first diamond in the list has turned black to indicate that there are subtopics. You can now add further subtopics, create sub-subtopics, or select **New Topic Left** to create a topic at the main level.


Schedule for August 29th
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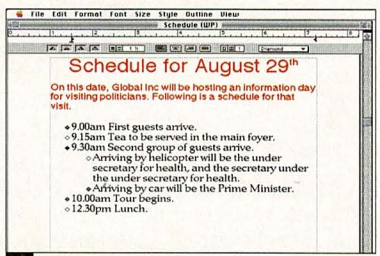
•9.00am First guests arrive.
◦9.15am Tea to be served in the main foyer.
•9.30am Second group of guests arrive.
•10.00am Tour begins.
◦12.30pm Lunch.

4 Once finished, you have options to either show all topics or collapse the list to show just the main headings. To do this, highlight all the topic paragraphs and select **Collapse** from the **Outline** menu.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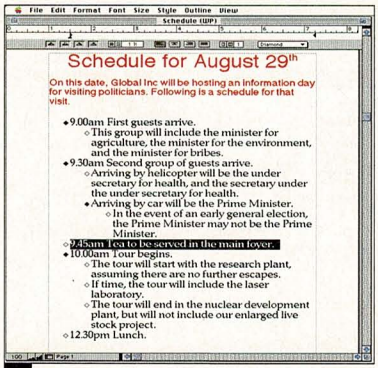
◦9.15am Tea to be served in the main foyer.
•9.30am Second group of guests arrive.
◦Arriving by helicopter will be the under secretary for health, and the secretary under the under secretary for health.
•Arriving by car will be the Prime Minister.
•10.00am Tour begins.
◦12.30pm Lunch.

5 Topics with subtopics now have a grey diamond. You can expand all the paragraphs, or just a few selected ones. Highlight a desired paragraph and choose **Expand** from the **Outline** menu.

CLICK IT
You can collapse and expand an outline paragraph by double-clicking its label.


Schedule for August 29th
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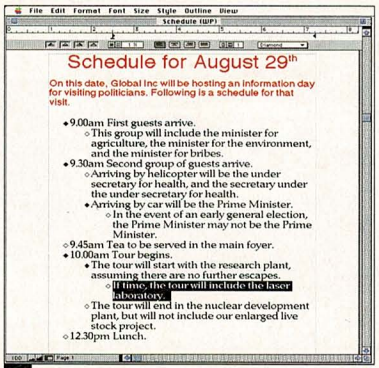
•9.00am First guests arrive.
◦This group will include the minister for agriculture, the minister for the environment, and the minister for bribes.
•9.30am Second group of guests arrive.
◦Arriving by helicopter will be the under secretary for health, and the secretary under the under secretary for health.
•Arriving by car will be the Prime Minister.
◦In the event of an early general election, the Prime Minister may not be the Prime Minister.
◦9.45am Tea to be served in the main foyer.
•10.00am Tour begins.
◦The tour will start with the research plant, assuming there are no further escapes.
◦If time, the tour will include the laser laboratory.
◦The tour will end in the nuclear development plant, but will not include our enlarged live stock project.
◦12.30pm Lunch.

6 The powers that be have decided to serve tea at 9.45am instead of 9.15. Highlight that paragraph and select **Move Below** from the **Outline** menu. It now appears at the correct level, but below the next topic.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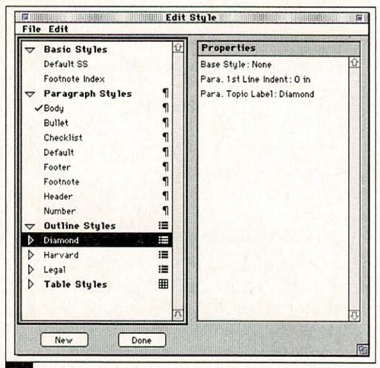
•10.00am Tour begins.
◦The tour will start with the research plant, assuming there are no further escapes.
◦If time, the tour will include the laser laboratory.
◦The tour will end in the nuclear development plant, but will not include our enlarged live stock project.
◦12.30pm Lunch.

7 You decide that the possible visit to the laser lab should be a sub-subtopic to the item above, rather than a subtopic in its own right. Highlight the paragraph and choose **Move Right** from the **Outline** menu.



8 You can view and amend the way an outline style is formed by clicking the **Edit** button in the **Stylesheet.** For more information on the best ways to use Stylesheets, see our tutorial in MACFORMAT 40.

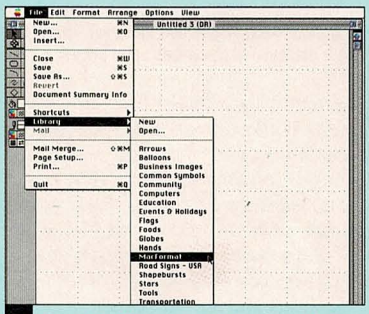
LIBARY LESSONS

Libraries are a great new feature of *ClarisWorks 4*, but if you've not come across them before in programs such as *QuarkXPress*, you may not yet have realised just how time-saving they can be.

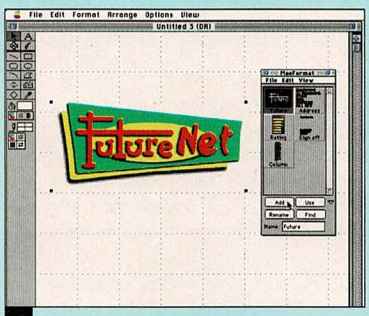
A library is a floating palette that acts very much like the Scrapbook in your Mac's Finder. It can store items that you use frequently until you need them, thus saving you having to recreate them every time. When you need an item stored in a library, all you need to do is select the item and drag-and-drop it into your document. The advantages are that you can have many libraries open at once, you can name the individual items and see a mini preview of them. The only limit to the number of libraries you can have, or the number of items in each, is the memory you've made available to *ClarisWorks*. There's even a Find facility based on the names you've given to items.

The current version of *ClarisWorks* comes with some 20 libraries of clip art for use in any module (except communications), but libraries are not just for clip art. They can contain almost anything: words, drawings, painting, even a group of spreadsheet cells.

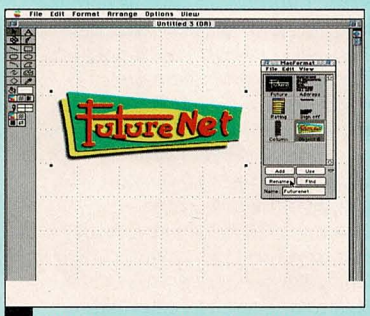
Typical objects you might store in libraries include graphics, such as logos, and text, such as a letterhead or sign-off. If you use *Works* on a regular basis, there's a good chance you'll be able to make use of libraries, so here's an example of how to do it...



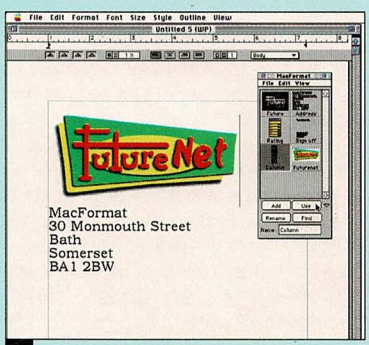
1 From the **Library** pop-out menu under the **File** menu, either select an existing library or select **New** to create your own.



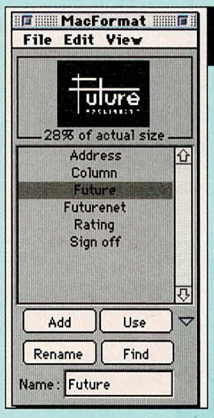
2 To add something to the library, select your text or graphic, then click the **Add** button on the library palette.



3 Click the arrow at the bottom of the library, type in an appropriate name, then click the **Rename** button.



4 To use an item in the library, either select it and click the **Use** button, or simply drag-and-drop in onto your page.



5 Using the **View** menu in the library palette, you can choose to view the items in the library either by their name or by a mini-preview.

6 Save the library by selecting **Save** or **Save As** from the **File** menu in the library palette's own small menu, not the main **File** menu.

ALL AT ONCE

You can add several graphic objects to a library at once by **[shift]**-clicking them, then clicking the **Add** button. Each is brought in to the library as a separate item.

SAVING

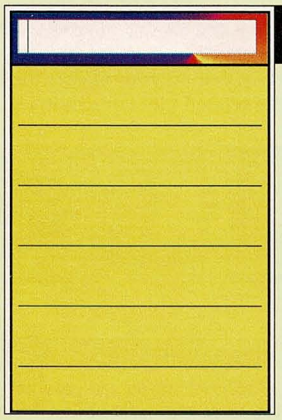
You can save libraries anywhere you want on your hard disk, but they'll only show up in the **Library** pop-out menu if they are in the **ClarisWorks Libraries** folder in your *ClarisWorks* folder.

COLLECT THE SET

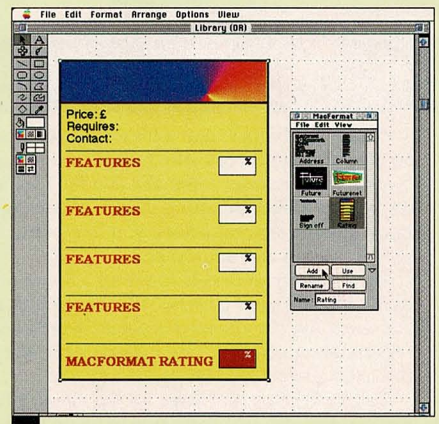
This is the sixth of our tutorials that show you how to get more out of *ClarisWorks*. The first five appeared in issues 36, 37, 38, 39 and 40 of MACFORMAT. Turn to page 128 for details of how to get hold of a copy of any issue you've missed.

CREATING A RATINGS BOX

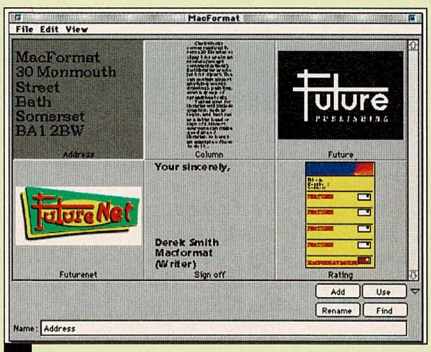
MACFORMAT has a variety of ratings boxes for all occasions, which are stored in a *QuarkXPress* library. Here's how you would create such a ratings box if you were to use *ClarisWorks*.



1 Draw the graphic using the *ClarisWorks* drawing tools. However, where the title should go, you want to create a blank text box containing the correct font and size. The problem is that empty text boxes disappear as soon as you click off them.



2 To get round this, you'll have to put some text in, even if it's only a space. That way the text box will remain in place for you to click on and type into later. Use **Group** from the **Arrange** menu to make the ratings box into a single item, then add it to a library.



3 If you have several ratings boxes with subtle differences, you can make them easier to see by making them larger. Do this by choosing **View Options** from the **View** menu in the library palette.

Meet the relations

Relational databases are to flat-file databases as the internal combustion engine is to the marrowfat pea. Yes, it's that simple, as Rod Lawton finds out...

Making jam is easy. At least, it is if you know how to handle *FileMaker Pro 3's* 'relationships'.

So far in this series we've looked at flat-file databases. These consist of a collection of records, each of which contains a number of fields for specific information such as names, addresses or telephone numbers.

Flat-file databases can be very fast and can store many thousands of records. They can carry out calculations, generate summaries, sort your records into any order you like and find the information you want with sophisticated search functions.

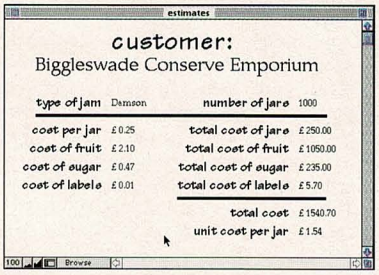
However, they do have a single, major, disadvantage. Each record is entirely self-contained – it can't be linked to or altered by information from any other record or database. Once you've typed the data in, it stays the same until you edit it.

Calculation fields can get numbers from other fields in the same record, and **Summary fields** can total up amounts from records which match specific criteria, but neither of these features help with one of the most simple but necessary tasks – how do you get data from another record or file? Not being able to do this is quite a serious limitation.

For example, you might keep a record of all your business contacts' names, addresses and telephone numbers. You might also have databases of invoices submitted, correspondence and ongoing projects. All of these should contain contact details, so that you don't have to open your Contacts database separately, but how are you going to make sure that they do? Do you type all the details into each database? That's a real chore – and if someone moves, you have to change all their entries by hand.

Another option, as we've seen in previous installments of this series, is to create all the fields you could possibly need and design different layouts for different purposes. This would work, but your database would be very complex and messy to set up. And, if you suddenly want to keep additional records – for example, a corporate Christmas card list – it gets messier still.

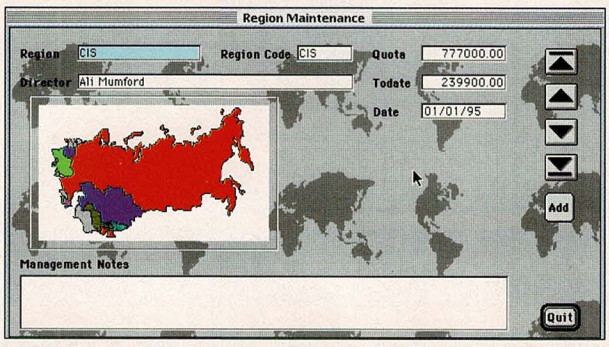
No, the only sensible answer is a database which can look up information from another file automatically. With one of these, your project database could extract the latest contact information from your contacts database on the fly. An invoice database could look up an address for an individual, and a job estimates database could draw on a list of materials and labour costs.



With relational links, you can get your database of customer estimates to use the latest figures from your database of stock items and prices.

BETTER BY DESIGN

The complex interrelationships of relational databases make it much more important that you work everything out methodically before you attempt to build one. Otherwise it's very easy to end up with a database that gets unidentified information from an unknown source for no obvious reason... and then does something with it, although you're not sure quite what.



Even a dull and worthy corporate heavyweight like *FoxPro* can be given an attractive interface. Don't forget the poor soul who'll finally be using it!

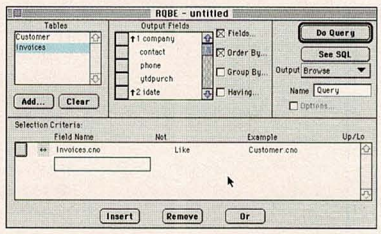
The way it works

Different applications go about this in very different ways. *FileMaker Pro 3* probably offers the easiest transition if you're used to flat-file databases, but it's still difficult to work out what's going on until you get that sudden flash of comprehension.

There are three main steps to setting up a relational link. The first is to identify the file you want to create a link to, the second is to identify the correct record within that file, and the third is to identify the correct field within that record. You provide *FileMaker Pro 3* with all three pieces of information via 'relationships' which you define in a series of dialogues.

The first step is easy. The file you want to link data to is the **master file**. The file you're linking the data from is the **related file**. You simply choose the file you want from the standard Mac file-finding window.

The second step is the hardest to grasp, and the manual doesn't make it any easier. *FM3* needs to be able to identify the correct record in the related file – and you can't refer to the records by name or number. You have to 'match' a field in your master file to one in the related file. For example,



Microsoft's *FoxPro* extracts the data you want by 'interrogating' tables (files) with 'queries'. These are often frighteningly complicated.

LOOK ME UP

Claris's *FileMaker Pro 2.1* was a flat-file database with a 'lookup' function. This meant that you could set up a field to refer to a record in another file, copy the relevant data across and store it in the file you were working on.

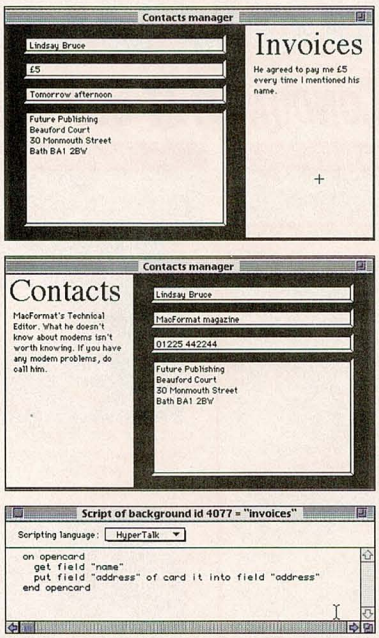
There's a very big difference between this and a 'relational' link, though. A lookup function finds the data and copies it across, but it's a one-off process. The original data might be changed later, but the value you copied across won't – not unless you manually update it.

A relational link is different. In effect, you aren't copying the data across from another file, you're implanting a field from the other file. Change the original value in the 'related' file and you'll see it update in the one you're working on – automatically.

Relational links sound a lot more useful, and so they are. But there's still a place for lookup values. Let's assume you make jam for a living. As well as a file containing details of your raw materials and current prices, you have a file of clients' names and addresses.

You might then decide to set up a file of price quotations for your clients. This would link to the client file (for the latest contact details and requirements) and the raw materials file (for the latest prices).

You need relational links for the client information, because you want this to be up to date at all times. But what about the prices? You need to record what you actually quoted, not the current prices – hence these fields would be best handled as lookups.



HyperCard is probably the oldest but slickest relational database of all. It's flexible and friendly, and with a bit of HyperTalk know-how you can easily create links from one card to another.

your master file might be a series of notes about your business contacts, in which case it'll have a field containing their names. You might also have a database of telephone numbers, and it would be nice to have a relational link that displayed those telephone numbers in your notes database. You do this by telling *FM3* to 'match' the 'name' field in your notes database with the 'name' field in the other file. (This is just a simple example – the fields in the two files don't have to have the same name.) When it updates its information, *FM3* will use the name in the current record to find the correct record in the related file.

Phew. The third and final step is easy. Now that *FM3* has found the correct record in the correct file, it just needs to know which field to get the data from. This is another potential source of confusion. You need to understand that the fields you use to match records are seldom the fields you want to get the information from. In this case, we simply need to tell *FM3* to get the contents of the 'telephone number' field.

In practice...

FileMaker Pro 3 has all the design and layout tools of a traditional flat-file database. However, in this version there's a new **Field** tool on the toolbar for creating relational links. When you drag it onto your layout, you are prompted to either choose one of the current 'relationships' or define a new one. Each relationship identifies the file the field links to, how to find the right record in that file and which field in that record to fetch the data from.

This is the basic principle behind most relational database design – using field matching to identify the correct records. Once you understand that the fields you match may be nothing to do with the fields you extract data from, it all becomes clearer.

However, there are several ways of handling relational data, as demonstrated by two other applications.

What a card

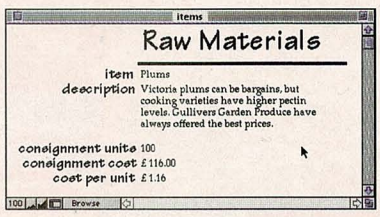
HyperCard may look like a bit of an antique these days – it's been around since the dawn of time and runs in black and white – but apart from being a programming language and a multimedia authoring kit, it's also a relational database.

At first sight it looks like a flat-file database, with each card forming a single 'record', but with a little HyperTalk programming knowledge you can easily get it to look up data on other cards. Even more usefully, you can create different backgrounds within a single stack to allow for different types of data. *HyperCard* can extract data across different backgrounds, too.

You can also write scripts that access other stacks, but you have to 'visit' these stacks to get data from them, which does slow the whole process down. Nevertheless, *HyperCard* is still a powerful relational database application with a highly flexible programming and reporting language.

What makes it especially friendly is that once you understand HyperTalk, you can refer to other cards (or 'records') by either name or number – you don't have to monkey about with mentally draining record-matching systems. The instruction get field "telephone number" from card "Apple Computer" is much friendlier than the multi-dialogue

The only sensible answer is a database which can look up information from another file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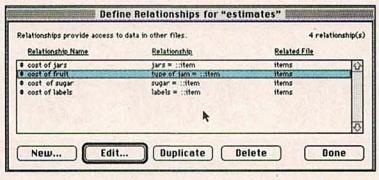
100
Browse

With a relational database you can store your information in a more efficient 'modular' form – one file for stock items, one file for customer details, one file for estimates and so on.



You thought relationships were complicated? Wait until you try *FileMaker Pro 3*...

hoop-jumping you have to go through with newer, fatter and substantially more expensive applications.

Wily old Fox

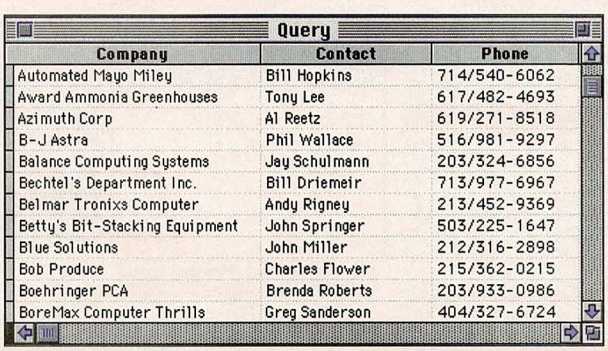
Microsoft's *FoxPro* is a heavyweight application designed more for use in your office and business than in your home. One of its main advantages is that its files can be transported from Mac to PC (where the application originated). However, this is a disadvantage too, because you're stuck with DOS-style filenames and the kind of dull, corporate-speak interface that still dogs serious PC applications.

Instead of files, it uses 'tables'. The same concept, but they're very different to look at and more than a little off-putting at first (actually, they're nothing more than ordinary databases in **List** view). *FoxPro* uses a heavyweight 'querying' system for extracting data – as do similar corporate-based applications. The idea is that you design a 'query' to interrogate all the necessary tables and present you with the data you want, organised the way you want, in a new table.

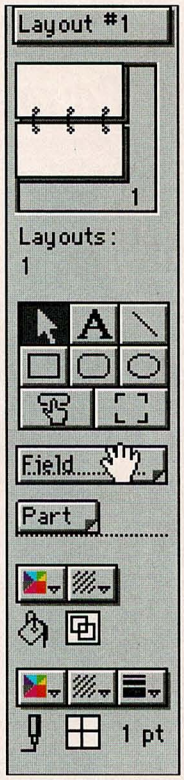
Queries can be complicated. They are saved as scripts which you can edit using the built-in programming language. You can also design custom interfaces so that your information looks less like a bus timetable.

The combination of interface design and scripting leads to some confusing terminology. In the high-powered world of professional database design, the 'application' is the custom-made interface and scripted procedures that are sold to the corporate client, whereas the software used to build it – *FoxPro* itself, for example – is the 'database manager'.

Next issue, we'll look at how to get the most from *FileMaker Pro 3*. **MF**



This is a *FoxPro* 'table' – it's essentially an ordinary database in **List** view. You 'query' this data to find the information you need.



FileMaker Pro 3 has a new **Field** tool. You drag it onto your layout to set up a relational link with another file.

GET IT HERE!

FileMaker Pro 3 was reviewed in MACFORMAT 37 where it scored an impressive 96% and a well deserved Classic award. Costing £233.83, it's available from Claris, which can be contacted on 0800 422322. *HyperCard 2.3* is available from Full Moon Software and costs £111.63. Call 01628 660242 for details. If you're feeling adventurous (or have a lot of time on your hands), Microsoft's *FoxPro* is available at a cost of £210.33, or £492.33 for the Professional Edition. Call Microsoft on 0345 002000 for more information.

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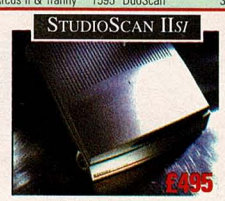

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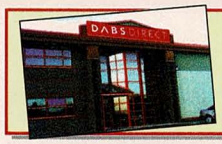

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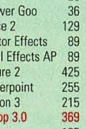

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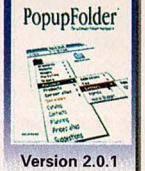

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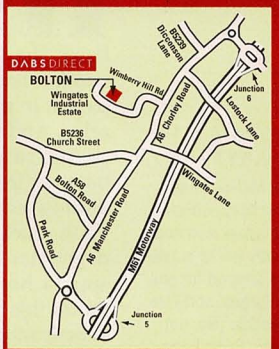

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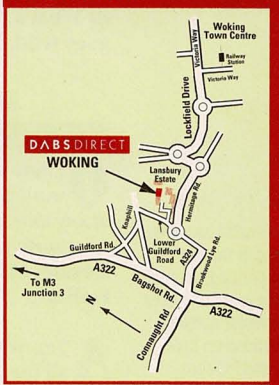

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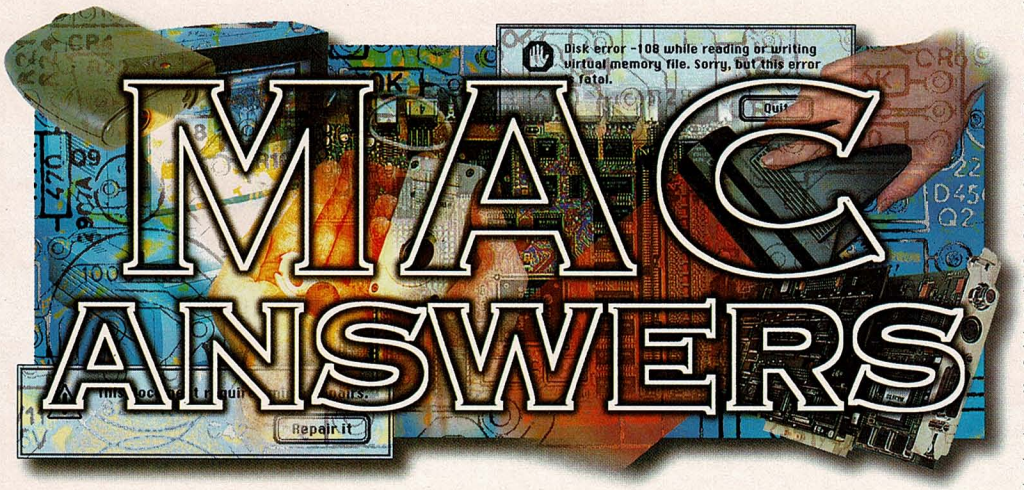


MAC ANSWERS

Is your Mac being unsporting? Join our office-chair athletes as they tackle some new Olympic sports: Mac crashing, speed bumping and RAM boosting...

WHO IS STUART?

Stuart McHugh has been in Mac publishing for ten years now and currently works in telephone support for one of the largest software companies. (No, not that one. Or that one. Yes, it's *that* one.)

WHO IS JIM?

Jim Chandler has been working in the professional printing industry for nine years and uses all the major software applications on both Macs and PC compatibles. But we like him anyway.

Hello and welcome again to Mac Answers, the section of MACFORMAT dedicated to solving your Mac problems. The Olympics may be over for another four years, but you've joined us just in time for the Mac Answers relay. And they're off! Lindsay Bruce gets off to a good start and hands the baton to fellow Scot Stuart McHugh, who covers good ground and hands on to plucky Jim Chandler. Jim negotiates those tricky curves and approaches the final runner – but who's this? It's a shock last-minute substitution! It's Alex Summersby, who hasn't attempted anything this demanding in years! Is he fit enough? He grabs for the baton, fumbles, and – oh no! He's dropped it! What a disaster! And as the crowd goes wild, here's the instant replay...

Mac insomniac

HARDWARE

Q I have a PowerMac 9500/132, and I want to be able to access my computer at any time. Can I leave my Mac turned on permanently? If I can't, why not?
Dennis M Zwart
Holland

A Yes, you can leave your Mac on all the time. In fact, Apple's range of Workgroup servers are internally almost identical to their equivalent desktop Macs, and these machines are designed to be left on – servers never sleep. (Or so our systems manager keeps promising. Crash, maybe. But sleep, never.)

In theory, leaving your Mac on permanently shouldn't do any damage. However, like everything else, your Mac is made of components that have a finite life expectancy. In normal use, you should get at least three or four years out of your Mac before things might start needing to be replaced, such as the hard drive, the PRAM battery, and possibly the floppy disk drive. There's no reason why the rest of your Mac shouldn't last ten years or more (Alex's Mac Plus is still going strong). But is leaving a Mac on all the time (never shutting it down) 'normal use' or not?

Opinion is divided on this. Some believe that never shutting down is a good thing, because you're not subjecting your Mac to the voltage spikes that occur in the power supply when you switch it on and off. Others

In the olde days, the **Special** menu offered you some useful options, but there was only so much cleaning up windows and emptying Wastebaskets that a human being could take. Then along came the all-modern System 7.5.2 and PCI PowerMacs, and wow! You can put your Mac to sleep!

believe that running the Mac permanently is a bad thing because the constant flow of current through its circuits may affect the components. However, we've happily left our Macs in the office running overnight – sometimes even over a long weekend, completing a particularly lengthy 3D rendering or something – and no harm has come of it. So long as it's kept in a well-ventilated spot, overheating shouldn't be a problem, either.

The one component that might suffer from constant use is the monitor. The image you see is created by electrons fired from the monitor's cathode ray tube hitting phosphors on the inside of the screen. On older monitors in particular, a static image displayed for a great length of time can 'burn in' to the phosphor coating, leaving a faint, indelible 'ghost' image. Screensavers were devised to help prevent this by blanking the screen, or displaying a moving image, after a specified period of inactivity.

However, opinion is divided on this too – and in any event, the image would have to be there for months, perhaps even years, before this could become a problem. This means that the only part of the screen that is likely to be prone to 'burn in' is the menu bar area at the top. If you're worried, simply install a screensaver.

With the newest Macs, Apple has very thoughtfully made it even safer to leave your machine switched on. Your 9500, like all the new PCI PowerMacs, has a built-in energy saver that will power down the hard drive after a period of inactivity, followed by the monitor shortly afterwards. This is very much like the sleep mode built into PowerBooks as a battery-saving measure. You can put your desktop Mac to sleep via a new menu command in the **Special** menu (System 7.5.2 and above only) called, not surprisingly, **Sleep.**

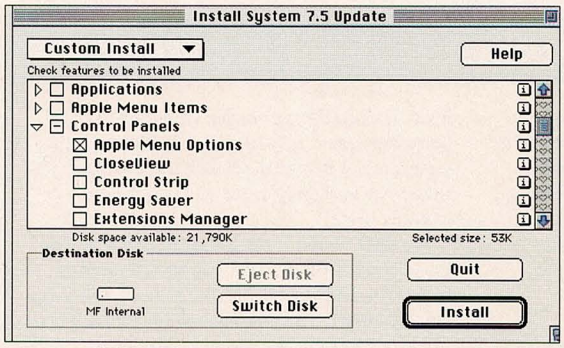
This is very handy if, for instance, you have a fax modem and might receive an incoming fax overnight. Left to its own devices, the Mac will go to sleep after a while, but will wake up when a fax is received – depending on the fax software you have. In sleep mode, the Mac uses virtually no power at all – only the memory chips and the processor are kept running. To bring it alive again, you simply press the power key at the top (or top right) of the keyboard. **LB/AS**

Now you're talking

SPEECH RECOGNITION

Q I read in your 'Enabler' feature in MACFORMAT 40 that the Mac can recognise voice commands. I believe this is possible with a PlainTalk microphone and PlainTalk *software. Getting the microphone has proved no problem, but getting hold of the* PlainTalk *software has been more difficult. I have a Performa 630 with 8Mb of RAM and the software did not come pre-installed. I have contacted a number of help lines, but keep getting passed on to someone else. Where can I get it?*
John Atkinson
Burnage, Manchester

A Apple's *PlainTalk* speech recognition software is designed to enable your Mac to understand spoken commands. Ask it the time or date, order it to open a folder or file,



To ensure that you have the latest, bug-free version of the **Apple Menu Items** Control Panel, you can 'custom install' it using the official UK System 7.5.3 update Installer on the MACFORMAT 39 Cover CD. This should simply overwrite any old version you have floating around.

or tell it to run an AppleScript routine, and (in theory) it will. In practice, however, there are a few drawbacks.

For starters, *PlainTalk* was designed in America, by Americans, for Americans, and it really only understands American accents. (Scottish also seems to work pretty well, but 'standard English' is rather unreliable.) Shouting at your Mac in a phoney American accent might work, but it'll raise a few eyebrows around the office.

More seriously, *PlainTalk* is still quite limited in scope. The system is designed to recognise a limited number of commands (strictly one at a time) and distinct file or folder names, but that's about it. At best, you can use it to run an AppleScript routine (some useful ones are provided with the package), but you can't use it to dictate a letter.

Unfortunately for you, though, John, the major problem has to be that it only runs on PowerMacs, or the Centris 610AV or Quadra 810AV. Speech recognition requires a lot of processor power, and only PowerMacs and the AV machines with Digital Signal Processor chips can cut the mustard. I'm afraid your Performa just isn't up to it.

For anyone else who wants to try, *PlainTalk* software is available direct from Apple – phone free on 0800 127753. It'll cost you £15 to cover duplication and carriage. Alternatively, you'll find it on the Apple System 7.5.1 upgrade CD (or more recent versions). Try your local AppleCentre. **JC**

The lady vanishes

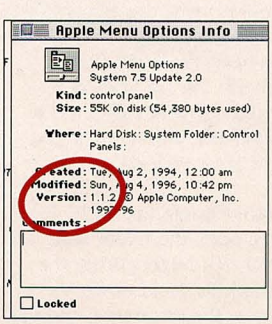
DISAPPEARING MENU

Q I have a PowerMac 7200/90 with 32Mb of RAM and System 7.5.3 without virtual memory turned on. My problem is that my ***File*** *menu often vanishes without warning. This can happen in any program at any time, and I haven't noticed any pattern to it. The command options, such as* ***[command] Q*** *to quit,* ***[command] S*** *to save, and* ***[command] O*** *to open a file often do not work either once the* ***File*** *menu has disappeared.*

This happens about once most days (my Mac is on for about 18 hours a day). Relaunching whatever program I was running brings the menu back.

I have installed System 7.5 update 2 and have only noticed the problem since doing so. Is that at fault? What is the cure?

James Carroll
via FutureNet


Apple Menu Options Info
Apple Menu Options
System 7.5 Update 2.0
Kind: control panel
Size: 55K on disk (54,380 bytes used)
Where: Hard Disk: System Folder: Control Panels:
Created: Tue, Aug 2, 1994, 12:00 am
Modified: Sun, Aug 4, 1996, 10:42 pm
Version: 1.1.2, © Apple Computer, Inc. 1992-96
Comments:
Locked

Do a 'Get Info' (**[command] I**) on **Apple Menu Options** and check that you have the latest version – or at least not the buggy version 1.0.

A The most likely culprit here is an officially-acknowledged bug in **Apple Menu Options v1.0**, the Extension which gives you sub-menus (and some other little extras) in your **Apple** menu. The bug, which causes exactly this symptom to occur, was fixed in v1.02 – to check which version you have, locate the Extension in the **Control Panels** folder within your System Folder, highlight it by single-clicking on it and then press **[command] I** (or select **Get Info** from the **File** menu – assuming it's still there!). You really should have the new version if you have an up-to-date System (Apple says it hasn't gone back to v1.0 in the update), but there's a chance you've got hold of the older version from somewhere. Replace it with the new version from your System CD if you need to.

If this isn't the cause, it is possible that the menu resource is being purged from memory for some reason. It could be an Extensions conflict, possibly with your fax program. (Since you have e-mail and a newish Mac, we're guessing you have a fax-modem and fax software with it.) Some fax software alters the **File** menu so you can fax directly from the Desktop, and odds are it was written well before System 7.5.3.

It might not be easy to confirm whether this is the cause, but if you can do without faxing (and some other things) for a day, try starting up with Extensions off (hold down the **[shift]** key as you start up) and see if you can get through the day without the problem cropping up. If this works... well, it may not be conclusive, but I'd try getting an updated version of the fax software. You don't mention which program you have, but there must be a customer services or technical support contact number somewhere in the documentation that came with it. **SMcH/LB**

Network Plus!

NETWORKING

Q I have an LC and have just acquired a second-hand Mac Plus for £25. There are several things I'd like to know:

1. Is it possible to network the LC (System 7) and the Plus (System 6) together? If not, can I put System 7 on the Plus?

2. If I do install System 7 on the Plus, will it run quickly enough? I've been told it's too slow at a paltry 8MHz.

3. If it is too slow, would it be advisable to upgrade it to a faster speed? I can get a MicroMac PerformaPro 32MHz 68030 with FPU and cache, but this costs £376, though there is a cheaper version available.

4. If it is possible to network these two machines together, can they share each other's hard disks and floppy disk drives?

5. The serial port on the LC is used by my modem. Will this be a problem when connecting the two machines together?

Christopher Ridley
Wirral, Merseyside

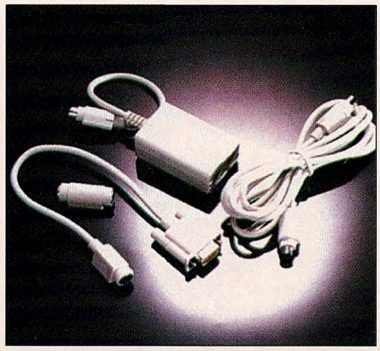
A 1. All Macs have built-in networking capability, called AppleTalk. It's quite simple to attach two Macs together. You will need two LocalTalk connector boxes and a length of LocalTalk cable.

The only fly in the ointment may be the Mac Plus's LocalTalk (labelled as its 'printer') connector. Modern Macs have a small, round 'DIN-8' connector for their printer port. Your Mac Plus may well have one of the earlier, '9-pin D' connectors – although not all Pluses do.

Take a look at the printer port. If it's vaguely 'D' shaped, and has nine pins, it's the earlier type, and you'll have to specify that you need this type of network adaptor. The adaptors shouldn't cost more than £20 or so each, and you can get them from your local AppleCentre, or try Performance Direct on 01784 477477.

You won't need to install System 7 on the Plus if all you want to do is access its hard disk from your LC for extra storage space. However, installing System 7 (or later) on the Plus would make matters much easier, because you could then use its built-in File Sharing support for copying files between machines, as well as for sharing drives, programs and files.

Continued on next page



It could hardly be easier to network any two Macs together: all you need is an AppleTalk connector and the appropriate cables. No need for expensive routers, hubs or servers – your Macs have everything else they need built in already!

DIRTY TRICKS

If you want some of the functionality offered by Extensions like **Apple Menu Options** but don't want to upgrade to the latest version of the System (perhaps you don't have enough RAM to run it...), you can try installing just the Extension you want. If it can't work with your version of the System, you'll just get an alert telling you it's 'too new' – but we have used **Apple Menu Options** under System 7.1 with no problems... unofficially, of course.

PUSHING THE PRAM

PRAM (pronounced 'pee-RAM') stands for Parameter RAM. It's a special area of memory set aside for storing important settings like the date and time, and how many colours you've set the monitor to. It's backed up by a battery so you don't lose these settings every time you switch off – but of course all batteries run down after a while...

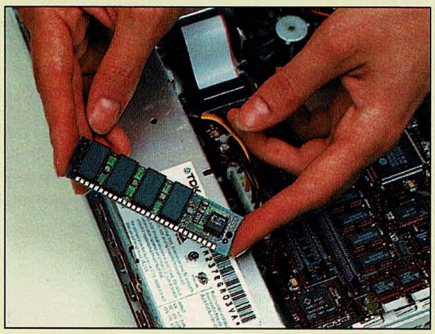
SIMPLY ADD SIMMS

Q *I have decided that this is the moment to expand the memory of my 6Mb LCII. I had a look inside and found three memory slots. One SIMM has 72 pins, which looks like the original Apple one. This should be 4Mb, and other two slots are filled with 1Mb SIMMs. If this is right, I think I should take the two 1Mb cards out and put higher capacity SIMMs in. Could you advise me on how much memory I can add and how?*
Enrico Tedeschi
via FutureNet

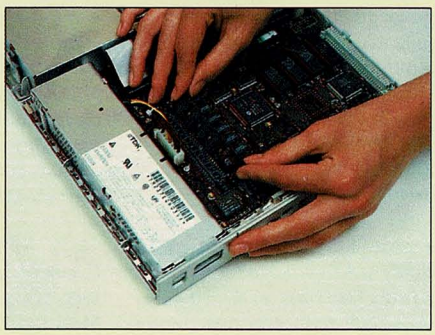
A You're not far wrong. Your LCII has 4Mb of RAM soldered to the motherboard, which cannot be removed. To the left-hand side of the motherboard (as you look at it from the back) there are two slots for general RAM expansion. These accept 30-pin (not 72-pin) SIMMs (Single In-line Memory Modules). To boost your RAM, you'll have to remove both of the 1Mb SIMMs in these slots and fit two 30-pin SIMMs of identical capacity, up to a maximum of 4Mb per SIMM.

This will give you 12Mb of memory, but an incurable quirk in the LCII's design means that you'll only be able to use 10Mb – an LCII just can't recognise more. There's no such thing as a 3Mb SIMM, so I'm afraid you'll have to resign yourself to losing those 2Mb. But RAM is cheaper now than it has been for years, so you should still be getting your money's worth. Check the adverts in this issue and shop around for the best current price.

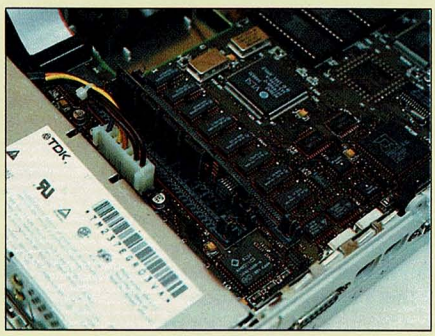
It's also worth noting that in order to use more than 8Mb on an LCII, you'll need to select the **Memory** Control Panel from your **Apple** menu and check that 32-bit addressing is turned on. By the way, the other memory socket with a SIMM already in it is your LC's video RAM (VRAM). This is specifically for running your Mac's screen display and is completely independent from the rest of your memory. **JC**



To install more RAM, take the lid off your LCII (or other modular Mac) – your manual will explain how. Locate the SIMM slots. To avoid damage from static electricity, hold the new SIMM by its edges only, never its connectors.



Older Macs take 30-pin SIMMs, newer models the 72-pin variety, and the latest need DIMMs – so tell the dealer which Mac you've got! Insert the SIMM in the socket like this – it will only fit the right way round, so don't force it!



Press it gently into place. Many Macs (including the LCII) require you to fill both slots with SIMMs, both the same capacity. Check for dust as you replace the lid, and don't touch the circuit board – static electricity can 'fry' chips!

GOT A PROBLEM?

If you've got a Mac problem you'd like our experts to tackle, send it in using the form opposite (or a photocopy), or e-mail us at **macformat@futurenet.co.uk** with the word 'MacAnswers' in the subject title. Sorry, we can't reply individually or answer technical queries over the phone. If you have an urgent problem, try calling the Apple Assistance Centre, 01753 615999.

See answer 4 (below) for details.

2. System 7 is quite a lot bigger and more complex than System 6, and will take up a lot of memory – you'll really need 4Mb of RAM on your Plus to get any sensible use out of the machine with it installed. Because it's a lot more complex, it will sometimes seem to be slower than System 6 (though not unusably slow). However, it makes up for that by offering useful goodies such as aliases and file sharing.

3. Are you seriously considering spending £376 to speed up a Mac that only cost you £25 to begin with? For that kind of money, you could junk the Plus and buy a second-hand LC, which would be much faster.

4. System 7 supports File Sharing over a network, so you can share your hard disks – each Mac's hard disk can appear on the other's Desktop, just like a local hard drive. You won't be able to share a floppy drive (and you really wouldn't want to – it'd be unbelievably slow), but you can always copy the contents of the floppy onto that machine's hard disk and share it from there.

With System 7 on only one machine and System 6 on the other, you can't use File Sharing, but under System 6 you can still select **AppleShare Client** in the **Chooser** – it comes with System 6.07 – so you could have one-way sharing where the Plus 'sees' the LC and can take stuff from it and drop stuff into its hard disk. To do it the other way around, you could install **AppleShare Server** on the Plus. This isn't a good idea, though, given how limited a machine it is. Another possibility is pre-System-7 sharing utilities, such as *Public Folder*, but personally, I'd just install a bare-bones System 7 on the Plus and have done with it.

5. The LC has two serial ports: the modem port, which you've connected your modem to, and a printer port which is really its LocalTalk networking port. If you connect your Macs together using LocalTalk, you won't need to disconnect the LC's modem at all. If you want to connect a printer as well as the Plus and your modem, you'll need a serial port splitter, such as the Port Juggler, which enables you to switch between up to four different devices connected to the same serial port. It costs $99 plus $35 P & P (a total of about £80) from Momentum Inc in the US. Phone the company on 00 1 808 263 0088 or fax 00 1 808 263 0099. **JC/SMcH**

Look, ma, no rodent!

KEYBOARD SHORTCUTS

Q *I recently damaged my mouse (don't ask) and had to borrow another one in order to carry on working. It started me thinking: there are simple keyboard shortcuts for most commands on a Mac, but can you navigate around the Desktop, open folders, launch programs and so on without using the mouse?*
Preston Hutchings
Reading

A Well, yes, you can get around the Finder without a mouse, if you really want to – or have to. But it's not ideal, and those nice people at Apple would really be very disappointed if you didn't use that revolutionary little control device they went to so much trouble to perfect. (In fact, they made a point of leaving arrow keys off the earlier Mac models' keyboards precisely so you wouldn't use keyboard commands, such as those you might have been used to from old-style DOS machines. But they soon relented – being able to move the cursor one character at a time, for example, is such a useful facility that it doesn't make sense to leave it out. Have you ever tried clicking precisely between an 'i' and an 'f'?)

So, using the Finder without a mouse. You can select any icon on the Desktop by typing the first letter of its name (or first few letters if there are several starting with the same one). Once something is selected, you can move to another using the arrow keys on the keyboard in the appropriate direction. To open the highlighted folder (or launch the application if the highlighted object is a file), press **[command] O** (the universal 'Open' command) or **[command]** and the down arrow.

You can move down the folder hierarchy (that is, open the folder highlighted within that folder) using the same combinations. Hold down the **[option]** key at the same time and the

previous window will close as the new one opens, keeping your display uncluttered. To move back up the hierarchy to the folder containing the one that's highlighted, press **[command] W** (the universal 'close window' command) or **[command]** and the up arrow. Holding down the **[option]** key does the same job as it did when you were moving down.

To jump straight back to the Desktop from wherever you are in the folder hierarchy, press **[command] [shift]** and the up arrow.

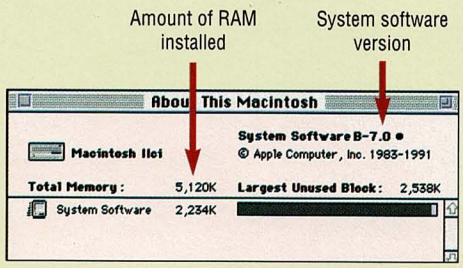
If you encounter any of those pesky dialogue boxes on your travels, you can select the default option (the button with the heavier border around it – usually **OK**) by hitting the **[return]** or **[enter]** keys, or you can Cancel by pressing **[command]** and the period or full-stop key (the universal 'Cancel' command). If there are any other buttons, you can usually (but unfortunately not always) select the other options by pressing **[command]** and the first letter of the option you want.

There are keyboard shortcuts for a whole host of Finder commands – most of them are displayed in the menus alongside the options they correspond to, so have a look now while you're still able to use the mouse. Just for a laugh, a couple of options *aren't* available in the menus: you can eject the disk in your Mac's internal floppy drive by pressing **[command] [shift] 1** and the disk in any external drive by hitting **[command] [shift] 2** – but both of these leave a 'ghosted' icon of the disk on the Desktop, along with any open windows belonging to it. The 'Eject Disk' command, **[command] E**, removes the icon and windows, and the 'Put Away' command, **[command] Y**, does the business for any highlighted volume (CD-ROM, server, anything).

Many of these keystroke commands can be very handy even if your mouse is working – if, for example, you can't move windows out of the way to get to the one you want to click on, or for some reason you don't want to. Sadly, not every menu option in the Finder has a corresponding keyboard shortcut, including some of the most useful. There's no keystroke for making an Alias or changing Views – or, more seriously, for **Shut Down**. This can be a problem if your mouse is out of service. You should always use this option to shut down – it makes your Mac perform some essential housekeeping before it powers down (such as recording which windows were open, so it can open them up again next time you start up) and, more importantly, 'parks' the hard disk's read/write head. The disk will spin down if you just switch the power off, but parking the head is an invaluable extra precaution against disk damage and data loss. So, your mouse is important after all. **AS** **MF**

The do-it-yourself problem solving guide...

One of the most common causes of problems on your Mac is Extensions or Control Panels clashing in your System Folder. It's easy to check if this is the case. Restart your Mac and hold down **[shift]**. Release the key when you get the message, 'Welcome to Macintosh.



Extensions off.' If everything now works, then the problem is likely to be an Extensions conflict. The only way to work out which item is the culprit is by trial and error. Remove a few Extensions and/or Control Panels, then restart your Mac, without holding down **[shift]**. Keep on doing this until the problem no longer occurs and you've found the offending software.

If this doesn't work, try rebuilding your Desktop. Start up your Mac holding down **[command]** and **[option]**. You'll get a message asking if you want to rebuild the Desktop. Click **[OK]**, wait for it to finish and see if this solves your problem.

If you're still stuck, use the form below to write to us. We'll need to know a few facts about your Mac, so when you're in the Finder, select **About This Macintosh** from the **Apple** Menu.

If you send in a question for the MACFORMAT experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW or fax it to us on 01225 446019.

Name .....

Address .....

.....

.....

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Your Mac
(For example, Performa 200, IIfx, PowerBook 145):

.....

System version
(see **About This Macintosh** screenshot above): .....

Amount of RAM
(see **About This Macintosh** screenshot above): .....

Are you using Virtual Memory? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Do you have 32-bit addressing turned on? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Details of any relevant hardware which could help us to answer your question:

.....

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Now, use this space to describe your problem or question. Please include as much relevant information as possible, and continue on a separate sheet if necessary.

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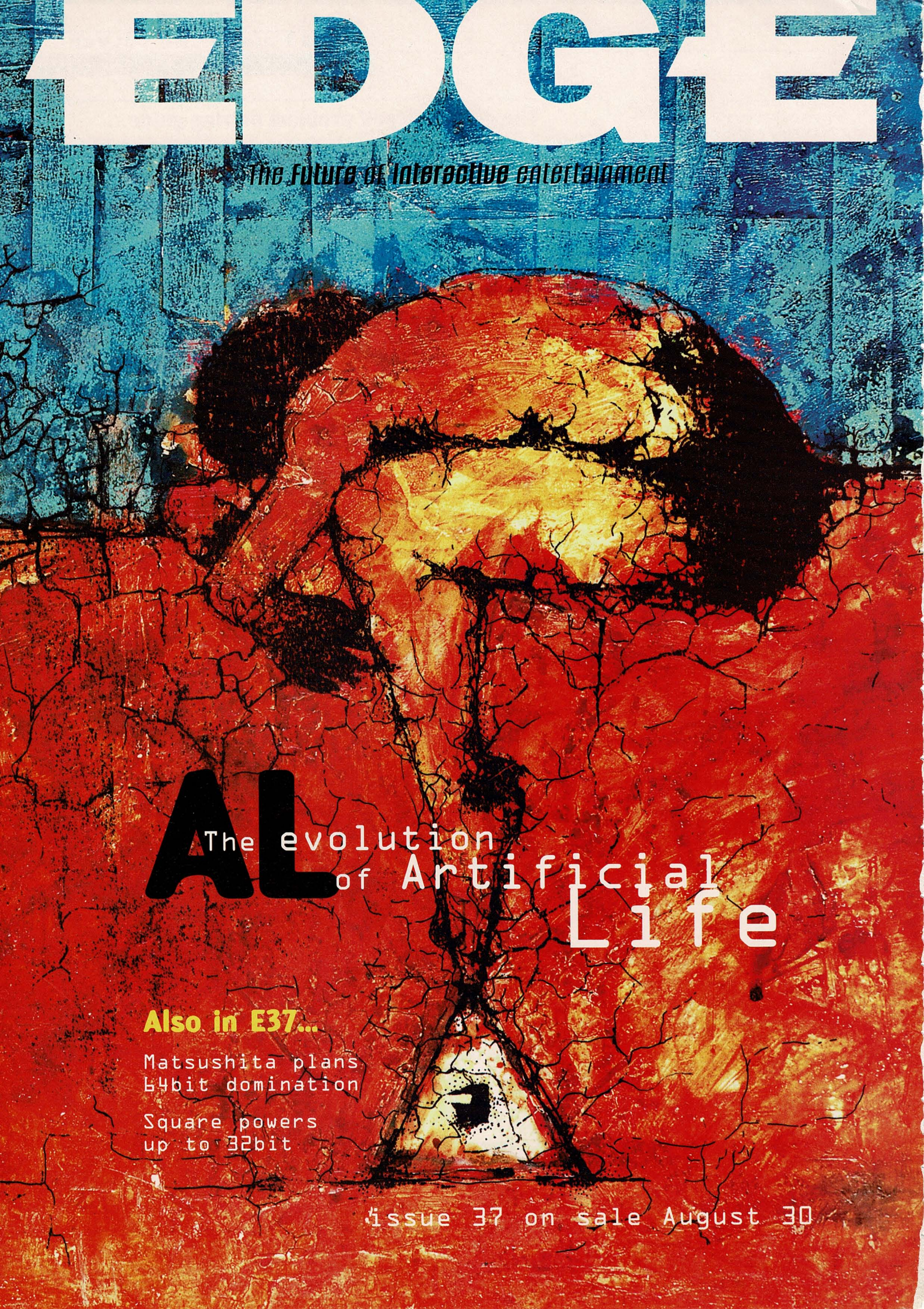
EDGE

The Future of Interactive entertainment



AL The evolution of Artificial Life

Also in E37...

Matsushita plans 64bit domination

Square powers up to 32bit

Issue 37 on sale August 30

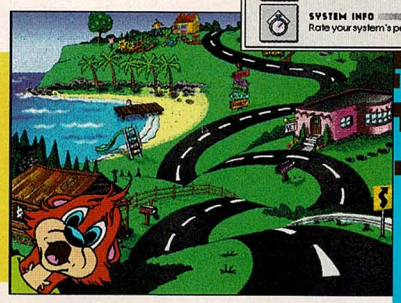
Reviews

Authoritative reviews of software from 3D graphics to music, utilities and games.

Just get in and drive? Can *Infini-D 3.5* give you powerful new features without sacrificing ease of use? Page 86.

Get on-line and stay in touch! New versions of four leading e-mail packages put through their paces. Page 91.

Dr Norton and his gang. Would you turn this lot loose on your disk? Page 98.



Observation, experiment... and some fun to the equation? Can multimedia make learning science more enjoyable? Page 108.

Reviewed this issue

Infini-D 3.5 86
A new version of the powerful but easy-to-use 3D graphics package

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Dorling Kindersley Eyewitness Encyclopedia of Space & the Universe 109
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NAME OF PRODUCT

Price: List price, inc VAT **Out:** release date
Requires: Minimum Mac, amount of RAM, System version, hard disk space (if 5Mb or more), monitor size/colours, other relevant
Contact for more information, not purchase

MACFORMAT RATING 72%

This is the information we include in reviews, with more detailed ratings for separate aspects of a product where relevant. The overall ratings scale is explained below.

Reviews you can trust

MACFORMAT Classic

Every MACFORMAT review is designed to inform you in detail of what you'd be getting if you bought the product being reviewed, and help you decide whether it's worth your money. It tells you the essentials, without the jargon.

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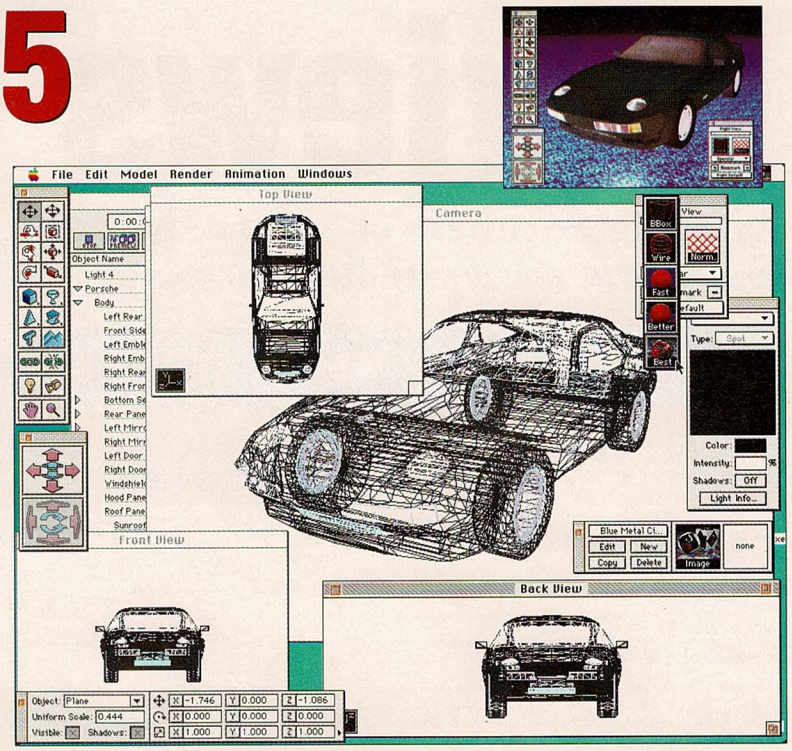
- A rating below 50% means think carefully before parting with your money (but note that we do distinguish on a sliding scale between a product that's 'almost there' and one that's almost completely a waste of time.

The MACFORMAT Classic Award

If a product earns a rating of 90% or more, we'll give it a MACFORMAT Classic Award. This means what it says: we judge the product to be a classic, a standard-setter of its type, something really special.

Infini-D 3.5

Build your own brave new world with this latest version of Specular's user-friendly 3D art package. Alistair Dabbs is the man with the bricks and mortar.



In *Infini-D 3.5*, as in most 3D, it's much faster to work in wireframe mode up until the very last minute...

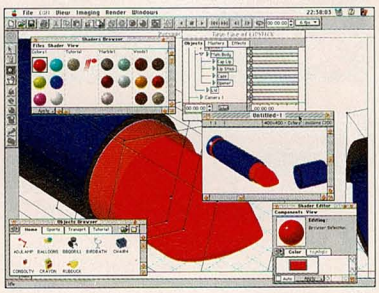
MAPPING

When a flat material (colour, texture or image) is applied to a solid 3D object, it is said to 'map' around it. A 'bump map' is a special colourless surface texture which gives the impression of raised and recessed areas on the object.

Over the past year, *Infini-D* has won awards for being not just one of the best mid-range 3D graphics packages, but also the easiest to use in its class. Specular has made many changes and added several important enhancements to version 3.5, but without losing this ease-of-use. Most significantly – and unusually – it has actually made some processes faster.

Infini-D is not the answer to every 3D modeller's dreams, because it doesn't let you create original objects by plotting points manually in space. Typically for a mid-range package, you build scenes by dropping geometric shapes from the tool palette onto your scene and then editing them together. To modify those primitive shapes themselves, you use the program's surprisingly good Workshop.

The Workshop appears as a separate modelling module, but it is fully integrated into the application: double-clicking on any object opens it in the Workshop. In this mode, you get a standard set of pen and cutting tools, and anyone familiar with 2D graphics software such as *Adobe Illustrator* or *Macromedia FreeHand* will immediately understand what to do. Here you can create shapes for lathing, extruding and combining in real time; once you're finished, **[command] E** takes you back to the scene view with your new object in place.



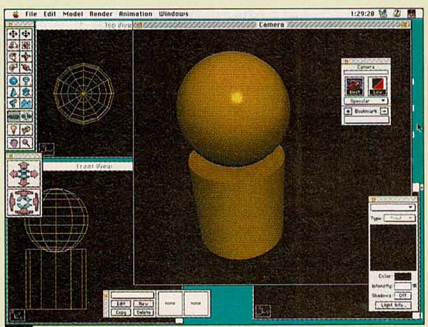
Before *Infini-D*, the last word in Mac-friendly user interfaces was *Ray Dream Designer*. With its floating tabbed palettes and intuitive animation timelines, *Ray Dream* has spawned many copycats. It is not, however, a very fast package when it comes to rendering.

I am not an object

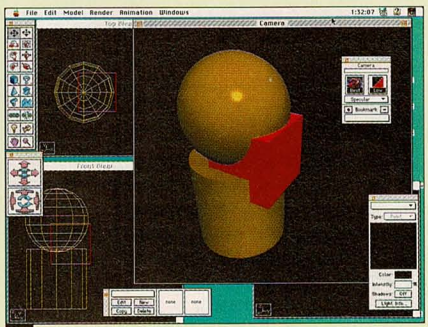
Unfortunately, you can't have your scene and the Workshop open simultaneously, so you can't drag and drop between them. Worse, there's no obvious process for creating new objects from scratch – you must edit existing selected objects. However, once you're in the Workshop, you can do pretty much anything you like with the objects, except delete them completely. Another factor making up for this limitation is the unusually wide range of ready-made objects available from the main tool palette – everything from simple geometric shapes to random spirals and bananas.

New in this version is an additional floating tool palette called the **Navigation Floater.** Although little more than a nudger, it's actually very useful for zooming around a scene and rotating in any direction, very quickly, in set increments. It isn't as accurate as using the click-and-drag manipulation tools or entering numerical values in the **Object Floater** palette, but, since Navigation 'nudges' apply to views rather than the objects themselves,

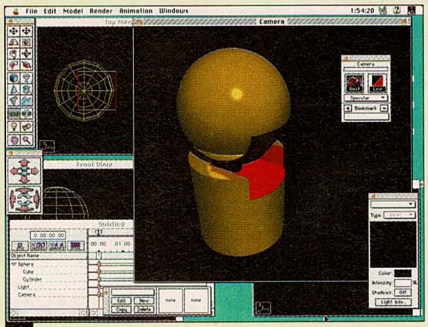
NEW! COMBINING SHAPES WITH BOOLEAN MATHS



1 New in *Infini-D 3.5* is support for Boolean objects – complex composite models created by a mathematical interaction between two other objects. Let's start by using the tool palette to draw a couple of basic objects: a sphere and a cylinder.



2 With these two objects given a parent-child relationship using the Link tool, we can introduce a third object – the red cube – and link it to the first two. Because of the relationship, the cube merges within the sphere and cylinder when you push it into their space.



3 With the yellow objects set to positive Boolean values and the cube set as negative, the cube shape will cut away from the first two. Note, however, that the cube is still there – you just can't see it. This Boolean subtraction can only be seen after rendering with ray tracing switched on.

A CAREER IN MODELLING – THE BASICS OF 3D

A 3D graphics package enables you to create – or **model** – solid objects in a three-dimensional space. It's a four-step process:

■ You build objects, or a complete scene, from simple solid objects, such as cubes, spheres and the famous doughnut-shaped 'torus'. You can create complex objects by combining these, or by drawing simple shapes and applying certain operations to them. A circle can be pulled along a straight path, or **extruded**, into a cylinder; a crescent can be spun around a rotational path, or **lathed**, to create a bowl.

■ Once you've assembled a scene, it's time to add surface effects – at this stage, your objects are simply **wireframe** 'skeletons' hanging in space. A 3D package enables you not only to colour each object, but also to give the surfaces any of a number of special realistic effects, such as shininess, transparency, reflectivity or even a tactile texture. Alternatively, you could use a single or tiled bitmap – also, confusingly, called a **texture** – to give natural effects such as wood, marble, and so on.

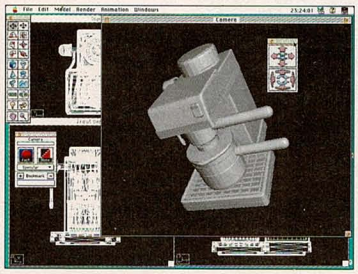
■ You then position the main viewpoint – or **camera** – and install anything from a single light source to a complete lighting rig. You can use diffused bulbs, distant suns, focused spotlights and so on to create a wide range of ambiences.

■ Finally, you **render** the scene. This is time-consuming, because your Mac has to apply all the surface and lighting effects to the objects, calculate the position of reflections, shadows and so on, and produce a 3D image.

The more complex the scene, the longer the rendering process will take. If you apply ray-tracing (realistic physics is used to work out how translucent and reflective objects should look), the rendering can take an hour or more. For this reason, most 3D packages, *Infini-D* included, offer a range of fast-drawing low-resolution preview modes in addition to the final render.

you can not only manipulate objects and shift the camera, you can move the scene itself.

Where *Infini-D* really starts to shine, though, is in the surface mapping and rendering processes. Logically, applying a surface colour or texture should be as easy as selecting an object and then either choosing a surface or creating a new one. *Infini-D* is one of the very few 3D packages to actually make it as easy as it sounds, using a floating **Surface** palette for applying the styles. By comparison, most other packages force you into complex dialogues before you can even get a rough preview. With *Infini-D*, you only need to call up the dialogue if you want to customise the surface style further.



Infini-D 3.5's **Navigation Floater** in action. It might seem like a very minor tool at first, simply enabling you to track along a vertical plane or in and out of the clipping plane. But in camera view, you can move in and out, side to side and even rotate by clicking on the Navigation arrows. It's much easier than zooming out and adjusting the camera object.

With the lights on

The upgraded **Light Floater** palette is another nice touch. It enables you to select each light in a scene from a drop-down list and then edit its properties. This means you don't have to hunt around the view windows, find the appropriate light and click on it. With a light source selected in this way, the palette gives a thumbnail representation of the light style and focus points. You can click and drag these points within the thumbnail to customise their properties, and you can fine-tune the position and angle with a further dialogue.

There are also three new advanced features which give *Infini-D* an edge over its competition. The first is **animated Booleans.** Boolean operations are used to negate or intersect one object with another – for example, you could use an invisible spherical object to cut a half-moon shape from a cube, or a series of squares could be cut away from a triangle to create steps. *Infini-D* not only supports these calculations, but also enables you to animate them, so that the cut-away effects can change over time. You could turn those steps into a moving escalator, or show bites being taken out of an apple.

The downside is that *Infini-D* reserves animated Booleans for ray-traced scenes: you cannot preview them in any other mode, nor can you generate a genuine single object from the combined Boolean operations. This means that simple final scenes can look like a complex mess in wireframe mode, because all the cut-away invisible objects are displayed. However, it's a welcome and highly effective first step towards true modelling Booleans, which may appear, with luck, in a future upgrade.

Flares are in again

Infini-D's second major new feature is **SuperFlares,** a term Specular has seen fit to trademark. Basically, these are lens flare effects, something which ought to be familiar to graphic artists who work with photo-editing packages such as *Photoshop*. But SuperFlares are rather more sophisticated than this. They are directly attached to light sources in a scene, facilitating realistic and logical placement of glows, halos and lens reflections.

When you apply a SuperFlare to a light source in the Light Floater, you can enter numeric values for the intensity, rotation and scale of glow, halo, streaks and reflection, and watch a thumbnail preview within the dialogue. Unusually, SuperFlares are a post-process effect – they're added after scene rendering is complete.

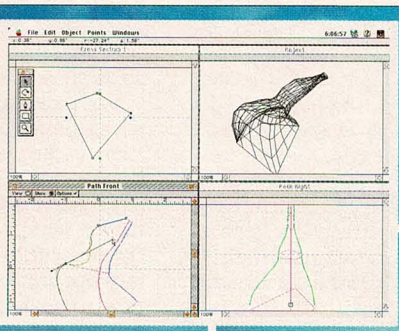
Again, Specular has taken the feature further by giving it animation support. This means you could add a sharp twinge of flare on an animated scene of a lighthouse each time the light shines directly at the camera, or have a halo shift in relation to the movement of a dollying or rotating camera. No other mid-range 3D graphics package offers this effect. *Macromedia Extreme-3D's* fog light effect is something similar, but even that doesn't come close.

Not everything in *Infini-D* is unique, though. In terms of animation, both

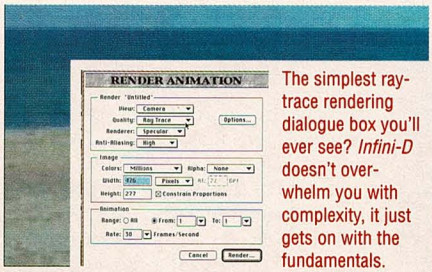
RAY TRACING

The most sophisticated and most realistic method of rendering a finished 3D scene is 'ray tracing'. This involves tracing rays of light from the light sources you've defined to the objects you've created and back again, in order to calculate in great detail how the light will reflect and refract on the objects. It is a very calculation-intensive and time-consuming process.

Continued on next page



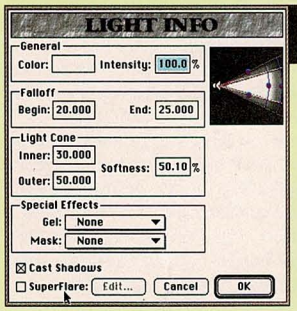
This model began as one of *Infini-D's* more exciting geometric shapes: the banana. Double-clicking on the model opens up the Workshop interface (shown here), where you can customise shapes by dragging nodes and editing the curves, Bézier-style.



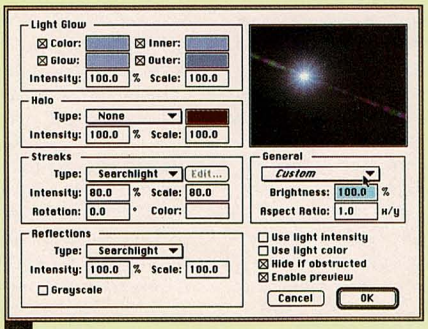
The simplest ray-trace rendering dialogue box you'll ever see? *Infini-D* doesn't overwhelm you with complexity, it just gets on with the fundamentals.

Video producers aspiring to 3D will like ShadowCatcher Objects, which enable their animated models to cast realistic shadows on to items in a digitised video. This demonstration example comes from Specular's Web site.

NEW! RENDERING WITH FLARE



1 Also new in version 3.5 is the 'SuperFlare' effect. You need to edit the properties of a light source in your scene to apply a Super-Flare effect. Just select the light you want to flare from the **Light Floater**, and call up the **Light Info** dialogue. You'll see the **SuperFlares** checkbox at the bottom – select it and click on **Edit**.



2 From here you can select from a range of pre-set flare types, including flashlight, searchlight, home video and zoom lens. If you prefer, you can enter custom values and use custom colours. With each change, a preview is shown in the window.

3 Once selected, the light source will flare up realistically once you render the scene. This extreme example of truck headlights also comes from Specular's Web site.

ALPHA CHANNEL

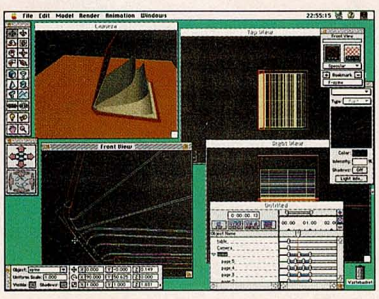
Standard 24-bit colour is made up of three 8-bit channels: red, green and blue. By adding another 8-bit channel (giving 32 bits in total), this extra layer can contain invisible transparency information, such as masking and mapping data.

the program's working method and its interface will be familiar – its floating animation window is very like *Ray Dream Studio's*, with scene objects listed down the left, each with its own timeline and draggable snooker-board control markers. *Infini-D's* animation controls offer no surprises, which in itself is a benefit if you're moving over from a competitor product.

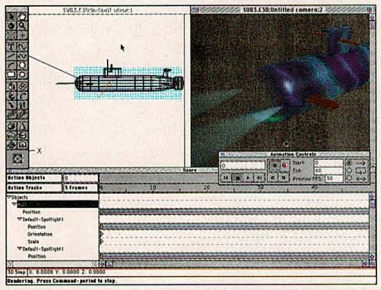
That said, video compositors do have more than the usual clutch of rendering features at their disposal. For starters, there's the program's third major enhancement, with yet another trademarked name: **ShadowCatcher.** This feature enables you to render an object only in the areas which are in shadow, saving the information in the alpha channel; all other parts of the object simply show the background colour or background image.

Surface colours and textures can be created from scratch or selected from a pop-up list of presets in the **Surfaces Floater**. This is one of many marble effects available, and you can apply just about any other bitmap image you like.

In practice, this means you can add an animated object to genuine video footage and use the shadow effects to create stunning realism. You start by reconstructing the objects from the video footage in rough form, then apply the ShadowCatcher feature to them so that they 'capture' any shadows which are cast on them by the objects that you want to add to the video. When you mix your rendered animation with the original video footage, it will appear that shadows are being thrown upon the surface of real items in the video by your computer-generated object. Nice.



Infini-D's multi-window approach is standard fare, as is the black background to everything, but as interfaces go, it's just dying to make friends with you. The floating palettes are intuitive and the menus surprisingly short, but it's a powerful and highly customisable package.



Macromedia Extreme-3D enables you to work in modelling and preview windows side-by-side, which you can't do in *Infini-D*. Its fog light feature is quite neat, too, but not a patch on the high-end SuperFlares for sheer realism.

What's more, the effects of a number of interface and internal code clean-ups are evident in the upgrade. The most significant is an increase in rendering speed: *Infini-D* has never been a slouch when rendering in any of its preview modes, but the lengthy process of ray tracing has been accelerated quite noticeably. Specular quotes a 500% speed increase for ray tracing SplineForm objects as polygons, although this will give slightly poorer results.

In normal usage, the 500% figure is not exactly typical. Nevertheless, many of the test renderings we carried out with ray tracing switched on ran much faster than in previous versions. Bear in mind, too, that not all of *Infini-D's* competitors offer ray tracing anyway: *Extreme-3D* doesn't, yet it still takes a similar or even longer time to render comparable scenes.

See you outside

Perhaps the improvement that will win most fans is Specular's new pricing policy: at around £470, *Infini-D 3.5* is one of the cheapest packages of its kind, and it includes many features missing from much more expensive products. There's still some way to go before it can challenge *StrataStudio*, but it throws down a gauntlet that *Ray Dream Studio* simply can't ignore (see MACFORMAT 34 for reviews of all three programs). In addition to an attractive upgrade price of £57.58, there is an irresistible second option which gets you the *Infini-D* Production Studio Bundle for under £140. This bundle includes Specular's distributed rendering utility *BackBurner 3.5* (which can now be triggered from within *Infini-D*) and two CD-ROMs of 3D models, scenes, surfaces, textures and animations: Specular's *Replicas* and its updated Pro-resource disc.

Infini-D is becoming increasingly sophisticated, but remains usable and manageable despite the enhancements. Those looking for a decent 3D graphics package for under £500 at last have a choice, and any existing owner of *Infini-D* would be mad not to upgrade as soon as possible. **MF**

INFINI-D 3.5

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Requires: Any Mac with an FPU, or PowerMac, System 7.0 or later, 6Mb free RAM (10Mb preferred), 5Mb disk space (23Mb preferred), CD-ROM drive.
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FEATURES 80%
Very good for a mid-range package, although some modelling Booleans wouldn't go amiss.

EASE OF USE 85%
Being easier to get into than other 3D packages isn't saying much, but *Infini-D* is significantly better most.

DOCUMENTATION 70%
The manuals are perfectly readable, but we're not big fans of old manuals plus loose upgrade addenda.

VALUE FOR MONEY 95%
Just as we went to press, Specular slashed the price. Hurrah!

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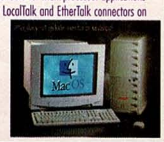

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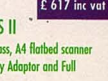

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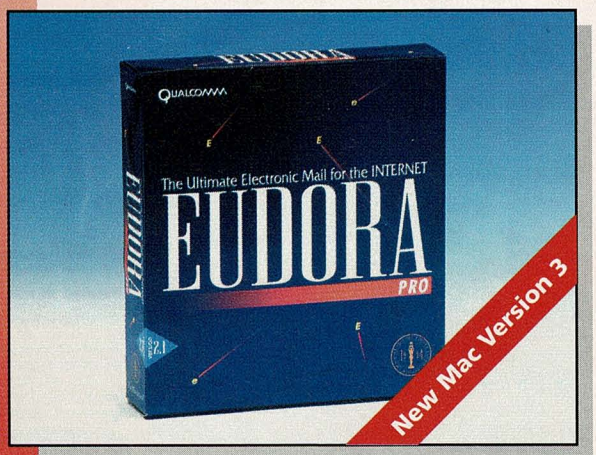

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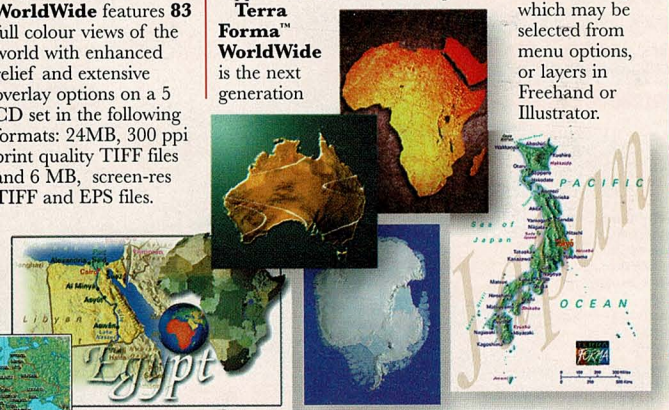

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Please Mr Postman...

Faster than fax, handier than telephone – e-mail can keep you in touch with contacts around the world. But which software is best for you? Rod Lawton investigates...

With the rise of the Internet, and with more and more people going on-line every day, e-mail is as indispensable as the telephone – and even handier: messages get delivered almost as fast, but you don't *have* to drop whatever you're doing to answer them, and there's a written record if you want one. It's so quick and easy that you might think e-mail software is simply for downloading mail, displaying it on your screen and bouncing back undeliverable messages, right?

But that's not all there is to it. If you use e-mail more than a couple of times a week, you should take a close look at some of the latest e-mail software – especially if your Mac is on a company network.

Who needs it?

Broadly, there are three types of e-mail user. First, there are individuals who have a Mac, a modem, a phone line and an account with an closed service, such as CIX, or an information provider, such as CompuServe. If you're connected to one of these services, your e-mail software is part of the package.

Second, there are those who have all of the above hardware and a simple dial-up connection via an Internet service provider. Although many service providers do supply software, it's not always earth-shatteringly good and you will probably want to choose your own, with the features *you* want.

Third, there are those who want e-mail at work. If it's just you who wants it, you can easily attach a modem to your telephone line – all software can manage dialling out. But if you're on a network – either a small-scale LocalTalk network or a huge EtherNet one, you can combine inter-office mail with external e-mail in a single application. There are cheap and easy solutions as well as big and powerful ones – over the next five pages, we test packages at both ends of the scale.

Useful features

There's a lot more to e-mail than you might think. Will you be wanting to keep messages that people send to you? If so, where and how will you file them? A good filing system will make your records a well-organised source of information. A bad one will take up hours of your time and make you thoroughly miserable.

How will you store the e-mail addresses of your contacts? On bits of paper? In your head? Most e-mail programs have **Address Books**, but some are better than others. Will you want to set up groups of contacts who you will e-mail in batches with the same message? Do you really want to scroll through hundreds of names to find the right one? Do you want to keep your work contacts separate from your personal ones?

Get your mail delivered

Networked e-mail software automatically delivers messages to your Mac, sounding an alert when it does so. However, if you're an Internet user, you have to put up with logging on to your mail server and collecting any mail yourself. This tedious routine can be sidestepped with 'schedules' – some e-mail software will dial your service provider at a predetermined time and download your mail for you. Your Mac and your modem need to be switched on and the software running, but it still reduces the effort involved, particularly since most of this software will work happily in the background.

Junk mail?

You can get as much junk coming down your phone or network cable as you get pushed through your letter box. If you subscribe to automatic mailing lists, or your Mac is part of a network of machines whose owners have nothing better to do than pass inane remarks to one another, you might even get more.

The right software can filter out the junk and send it straight to the trash without you even having to read it. While it's doing this, it can send messages from the boss straight into your **Urgent** folder, forward everything with 'wonderful opportunity' in the title to the e-mail address of your worst enemy and even scan the contents of all your messages for the word 'money'.

So now you know

Using e-mail isn't like using the telephone or fax machine – you have much more control than you have over either of those two antiquated modes of communication. With the wrong software you're stuck with reading every message sent to you and then having to find somewhere to put it. With the right software, it's like having your own personal assistant to filter out the rubbish and put the mail you need to see into the right tray on your desk. Choosing wisely will make your life *much* easier.

Continued on next page

WHAT?

If you're still confused about this whole Internet / World Wide Web / e-mail thing, you need to get your hands on a copy of MACFORMAT 39 for our complete guide to the on-line world. If you missed that issue, turn straight to page 128 for details of how to order a copy.

KEEP IT ALL IN

Many e-mail packages enable you to add 'enclosures' to your messages. An enclosure can be almost any type of document, from a word processor file to a graphic. It can be retrieved intact by the recipient of your message, so it can be a good way of passing on files.

JUST BROWSING

If you're an Internet user, why should you bother with specialist e-mail software when you've got *Netscape Navigator* and its built-in e-mail handling?

Well, pretty though it is, *Navigator 2.0* isn't especially fast. It's not the most stable piece of software in the world and it uses plenty of RAM. On top of this, although it offers most of the features of dedicated e-mail software, it's generally less sophisticated in its approach.

For example, although the **Address Book** can store users in groups ('mailing lists'), there's no facility to create separate folders for separate types of user. And while *Navigator* supports file enclosures, transfers are not fast and the length of the progress bar bears very little relation to the amount of time you can expect to wait...

Navigator 2.0 is fine for occasional use, but for scheduled daily raids on your mail server to collect your mail and keep your on-line time down to a minimum, it's a bit of a plodder.

Claris Em@iler 1.0 v3

For an e-mail application, *Em@iler* is very pretty. But is its beauty only skin-deep, or can this Claris newcomer sing, dance and make cocktails?

For an e-mail program, *Claris Em@iler* is visually very appealing. Historically, e-mail software has been written by computer programmers who converse with each other in machine code. This strange breed of people frequently only remember the software might need an interface some two days before the disks are due to be shipped.

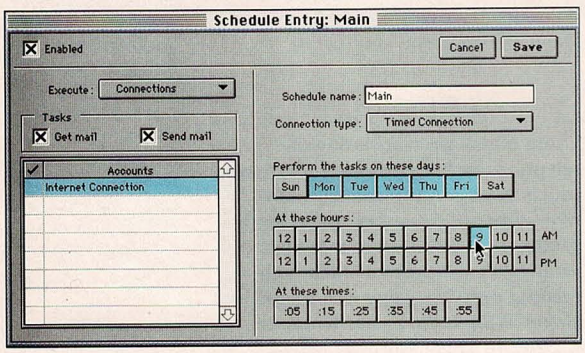
DON'T TELL A SOUL

Most people are familiar with the cc (carbon copy) messages that you routinely mail to interested parties in addition to the main recipient. The trouble is that everyone can see who else has received a copy... which is why you may also need a bcc (blind carbon copy) option. That way, no-one will know that you've ratted on them.

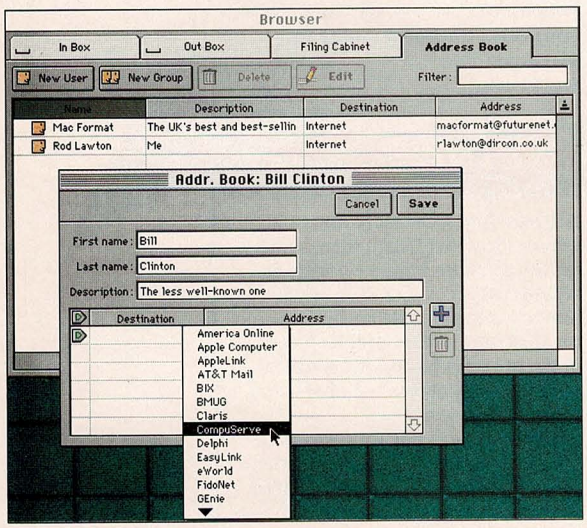
Easy and efficient

Installation is easy, thanks to a step-by-step walk-through, and the program's main screen is easy to understand too. There are four main windows, each of which you can open by clicking on one of the tabs running along the top of the display.

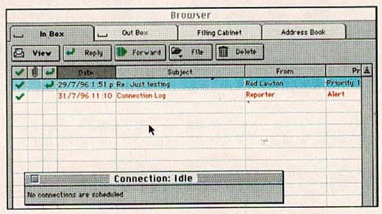
The **In Box** contains any messages you've received; the **Out Box** contains messages you've sent or are about to send; the **Filing Cabinet** is where you store the messages you've received; and the **Address Book** is where you look up all your necessary e-mail addresses.



As long as you leave your Mac running, *Em@iler* loaded and your modem on, you can have your mail downloaded automatically.



Em@iler's **Address Book** is nice looking but unsophisticated. You can add **Groups** for bulk e-mailings, though.



You can call up your **In Box, Out Box, Filing Cabinet** and **Address Book** from *Em@iler's* main screen. Just click on the appropriate tab.

The **In** and **Out** boxes are where you'll spend much of your time, and these are arranged in columns which display the message's sender, its title and various other pieces of information. This display can be customised according to the amount of detail you require on your screen. You can sort your messages according to the contents of each column – by sender, by subject, by date sent and so on – and you can also resize and re-order the columns.

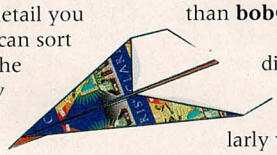
Once you've connected to your account and downloaded any new messages, you can disconnect again to save on your phone bills. You can then compose any replies and new messages while you're off-line, saving them up to transmit in a single batch later on. *Em@iler* also supports bcc and signatures (see the margin notes).

Sending files

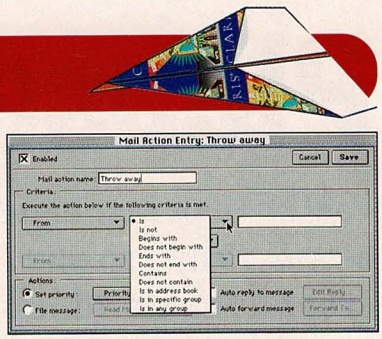
Like all modern e-mail applications, *Claris Em@iler* enables you to create 'enclosures' so that you can attach files to the messages you send. Annoyingly, you have to attach files individually – you can't attach whole folders at a time. On the plus side, as well as being able to choose the files you want to attach using the normal file dialogue, you can simply start typing the file name. *Em@iler* will attempt to find it on your hard drive as you're typing.

This 'find-as-you-type' feature also turns up in the **Address Book** – in fact it's now a pretty standard feature of e-mail software. The idea is that when you start typing a contact's nickname, the software checks your Address Book and fills in the full name and address as soon as you've entered enough letters to identify it.

So far, it's all pretty standard stuff. But *Claris Em@iler* also has some interesting additional features. For a start, it offers **Schedules**, whereby it will automatically log on to a chosen service and fetch your mail for you. You can create several different schedules for different services, all of which brings us neatly to the concept of **Destinations.** To *Claris Em@iler*, the Internet is a single destination, CompuServe is another destination, America OnLine is another and so on. You can save many different destinations with the advantage that, once *Em@iler* has established which destination you're using, it only needs the 'user' part of the e-mail address. For example, '**bob** at **futurenet**' rather than **bob@futurenet.co.uk**.



You can also set up different **Locations.** This is handy, especially if you regularly work away from your office and use different types of connections, modem speeds and so on. *Claris Em@iler* will store these details to enable you to collect your mail quickly – wherever you are.



Claris Em@iler's **Mail Actions** enable you to consign junk mail to the trash automatically, without even looking at it.

Don't bother me with this!

Em@iler also supports **Mail Actions** – it can automatically file, trash or redirect mail according to the contents of the message, the sender, its title and more. This is becoming a common feature of e-mail software and it could save you from spending hours plodding through tedious and unimportant messages. You can even get it to reply

CLARIS EM@ILER 1.0 v3

Price: £57.58. **Out:** now.
Requires: LC or better, 1.5Mb of free RAM, System 7 or later, modem, Internet account.
Contact: Claris on 0800 422322.

FEATURES 86%
Well-specified, with only a couple of minor omissions.

EASE OF USE 81%
Once you understand the design, *Em@iler* is quick and efficient to use.

DOCUMENTATION 79%
Clearly laid out and designed for beginners, but with some noticeable 'comprehension gaps'.

VALUE FOR MONEY 75%
Good value, but remember that top Web browsers include cheap or free e-mail software, albeit with fewer features.

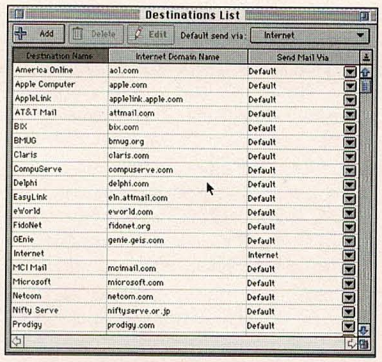
MACFORMAT RATING 82%

to those who contact you while you're on holiday to tell them when you'll be back and any other information you want to add – rather like a telephone answering machine, except the tape never fills up. (Whether you'd want to leave your Mac on and your modem connection open for a fortnight is another matter, though!)

Skip the tricky bits

Claris Em@iler has lots of features to enhance your e-mail experience, it looks very pretty and, overall, it's fairly easy to understand as well. Complaints? Well, although your **In Box** can contain any number of user-defined folders, you can't 'nest' them. So, for example, you couldn't have a folder of all your contacts at your parent company which branches into sub-folders for each department. And while the manual dwells for pages on concepts that you can grasp in an instant, it also skips quickly through some of the thornier bits of e-mail technology.

Overall, though, it's a good-looking, straightforward e-mail application with quite enough power for even heavy e-mail use. For this program to get bogged down, you'd need to be receiving an awful lot of mail.



Pre-configured **Destinations** are a neat idea for simplifying e-mail addressing... They really ought to take eWorld off the list, though.

SIGN HERE

A 'signature' is a piece of text (sometimes even a graphic) which your software can attach automatically to the end of your messages. It could be personal background, information about your company or, most irritatingly of all, a sales pitch.

Eudora Pro 3

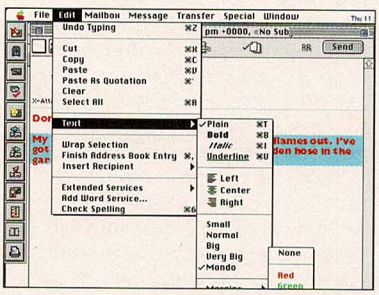
Eudora is usually the first dedicated e-mail package the experts recommend. Does it still lead the market, or is it starting to show signs of its advancing age?

Whereas *Claris Em@iler* is nicely designed and logical to use, *Eudora Pro* has a bit more power but lapses occasionally into expert-speak. It's generally easy to use, but there's no escaping the fact that it's an expert package that has been made friendly.

The installation process is particularly friendly, and just as easy to follow as *Claris Em@iler's*. *Eudora* will even ask whether you have an existing Internet connection, and will then automatically insert the settings in the appropriate dialogues. And once it has been installed, *Eudora's* on-line **Help** is instantly available via a long drop-down menu listing all the sub-topics you can look up. It's not as elegant as some of the increasingly common 3D 'interactive' help systems, but it's a darned sight quicker – it's obviously a programmer's solution, rather than a designer's!

Like *Em@iler, Eudora Pro* has an **In Box** and an **Out Box,** both separated into columns that list message titles, senders and so on. You can also drag messages into mailboxes you've created yourself.

Em@iler hides the technicalities under a simple, neat interface. In contrast, *Eudora* enables you to fiddle with some of the more tricky aspects of e-mail. For example, transferring attached files between computer platforms or between different services can prove problematic unless you get in there and start changing some fairly techie settings. Rather than design everything down to a lowest common denominator, *Eudora's* programmers have built in lots of features that won't always work, but might be useful when they do, such as text styling within messages. Using the 'text/enriched' MIME standard, *Eudora* can send messages using different fonts, styles, colours, sizes and even formatting. This is a bit of a lottery though, because the results depend entirely on whether your recipient's software can deal with what you've sent. Nevertheless it's an impressive option in the otherwise rather grey world of e-mail.



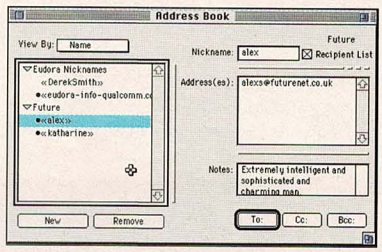
If the recipient's software can cope with it, you can include styled text in your e-mails.

Added bonuses

In other respects, *Eudora* offers a similar range of features to *Em@iler.* It can handle both cc and bcc copies, it has a system for scheduling mail collection (although it isn't as sophisticated as *Em@iler's*) and you can sort messages according to date, sender and so on. It does have a few extra features, though, many of which could prove useful.

For a start, you can set up 'stationery' files – messages that you find yourself sending out repeatedly, with only minor additions or amendments each time. And if you want to include the contents of a text file as part of an e-mail message, you can insert it with a simple menu command, rather than having to open the file with a separate text editor and cut-and-paste its contents across to *Eudora.*

The message composing window also includes a spellchecker that can even weed out simple errors in grammar and punctuation, and you can insert active URLs in your messages – when the recipient double-clicks on the link (coloured blue), their Mac will prompt them to choose a Web browser and then open the Web page.



Eudora's **Address Book** enables you to store nicknames, multiple e-mail addresses and notes on your contacts.

Added bonuses

Filing your mail is easier too, thanks to *Eudora's* multiple-layer mailbox system. While most e-mail software lets you set up individual mailboxes, *Eudora* enables you to set up mailboxes within mailboxes. Finding messages is easy, too, because *Eudora* can search for specific text strings.

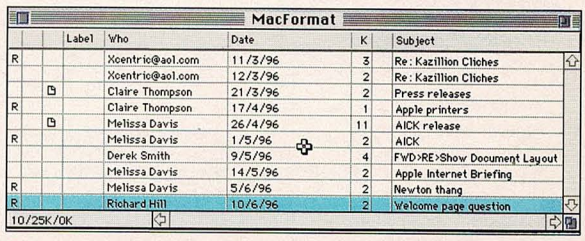
One of the common problems with e-mail messages is that they're formatted with 'hard' carriage returns (lines don't wrap automatically according to the margins), so they look okay on-screen but are difficult to work with if you carry them over to a word processor. *Eudora* will convert messages into plain text files by stripping out these unwanted carriage returns and converting multiple spaces to proper tab characters.

You also have more control over the server end of things, with the option

Continued on next page

SKIN DEEP

Don't like the way *Eudora* looks? You can spend many a happy hour exploring the display settings. As well as changing fonts and resizing icons, you can make the toolbar run vertically rather than horizontally.



Can't someone, somewhere, design a mailbox that's good to look at? *Eudora's* is only marginally more interesting than your average spreadsheet.

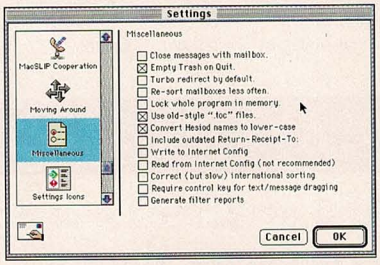
Eudora's **Help** system might not win any design awards, but it's instant and obvious.

to instruct your server to leave your messages accessible rather than deleting them, even after they've been read. This is useful if you use more than one Macintosh, because although the first one won't be able to read the same message again, a second machine will. This is particularly handy if you routinely read your mail on one Mac but download attached files to another, for example.

Potentially the most useful 'server' feature, though, is the way it enables you to skip messages over a certain size. This means you won't have to wait ages for huge attached files to download – you can see what the message is about first, and delete it without downloading it if you want to.

Eudora's 'filtering' controls are similar to *Em@iler's* **Mail Actions**, and you get an Address Book too. Usefully, though, *Eudora's* Address Book can store notes about your contacts, and includes a **Quick Recipient List** for easy access to your most-used contacts. Lastly, for the real techies, *Eudora* also enables you to use Ph and Finger directory services once you nominate appropriate servers.

Eudora has long been the first choice for those who want a dedicated e-mail program, rather than the limited e-mail features offered by most Web browsers. With each new version it gets less technical looking and more beginner friendly. It's still isn't as clean and straightforward as *Claris Em@iler*, but it has several useful features the cheaper program doesn't offer, and it's much more flexible, particularly if you don't mind getting your hands dirty.



If you like customising your interface, you'll love *Eudora*. Just don't ignore those e-mails while you're fiddling around with these settings.

EUDORA PRO 3

Price: £70.50 (multi-user packs start at £264.38 for a five-user pack). **Out:** now. **Requires:** any Mac, 1.5Mb of free RAM, System 7.0 or later, modem, Internet account.
Contact: Electric Mail on 01223 501333.

FEATURES 91%
There's not much more an e-mail application could do!

EASE OF USE 74%
Too many buttons and poorly designed icons disguise a simple interface.

DOCUMENTATION 84%
Straightforward and comprehensive. It's not exactly chatty, but you'll find out what you need to know.

VALUE FOR MONEY 75%
A bigger price tag than *Claris Em@iler*, offset almost exactly by the much more extensive feature list.

MACFORMAT RATING 83%

Snap Mail 2

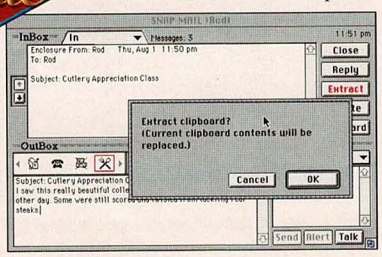
Company e-mail networks are usually difficult to set up, but Casady & Greene is renowned for its user-friendly software.

THE POWER OF SPEECH
If you own System 7.5, you'll find *Speech Manager* on your System disks.

You don't always want to send e-mail to the other side of the world. Indeed, frequently you won't need to send it further than the other side of the office. If your Mac is on a small LocalTalk network, e-mail could be the most efficient means of communication – much better than walking across the department, getting a coffee on the way and ending up talking about football.

Snap Mail 2 is designed for small to medium-sized networks. Forget everything you've read or heard about networked e-mail, mail servers, administrators and network protocols. With *Snap Mail* you simply install it and... well, use it.

Snap Mail checks your network for other Macs and then displays them in your **Address Book**. You can send a message to anyone on the network and they will be able to read it on their screen moments later, provided they have a copy of *Snap Mail* too. It's quick and blindingly simple.



Snap Mail is smart enough to be able to attach Clipboard contents to your messages, but not smart enough to display them as part of the message.

If you're the technical type who likes to know this kind of stuff, *Snap Mail 2* is designed for peer-to-peer networks, and will work on any kind of AppleTalk network, including LocalTalk, PhoneNet, EtherTalk, TokenTalk and Apple Remote Access. It's normally supplied as a five-user pack, but larger packs are available.

Home from home?

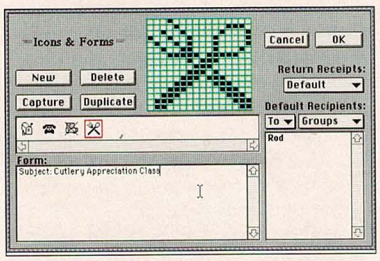
In many respects, it works just like *Claris Em@iler* and *Eudora* – you see a list of received mail and you can select individual messages to read them. These messages can then be filed in user-defined folders, and you can search your messages for specific text strings later on.

You can also send and receive files attached to messages, up to a maximum of 15Mb. *Snap Mail* will even 'resolve' aliases, so that if you attach one of your aliases to your message the recipient will get the original file, not the alias. And as well as separate files, you can also attach the contents of the Clipboard to your messages.

In the blink of an icon

In other respects, though, networked e-mail software is very different from the common or garden single-user modem or Internet variety. For a start, everything happens much faster. Your messages appear on the recipient's computer almost instantaneously, and this allows real-time 'conferencing', whereby two or more users can swap messages which appear in sequence in everyone's message window. (If you're feeling secretive, you can select who will see your comments, changing the list each time if you like.)

And since your network connection is always 'live', you don't have to go through the rigmarole of connecting up to download your mail. Each message is sent and received instantaneously, and you're notified of new mail straight away, by a flashing icon,

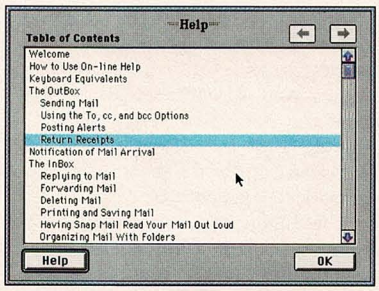


Snap Mail enables you to capture other people's icons, and even design your own.

an audible alert or an alert box. You can also set it to tell you when your outgoing messages have been read – useful if you're chasing information or haranguing idle colleagues.

Sometimes, though, you don't want to send a full-blown e-mail message, just a reminder that it's time to go to lunch or an important meeting is about to start. *Snap Mail* copes with this using 'Alerts'. These are time-sensitive messages that disappear once their deadline has passed.

Snap Mail's friendly, colourful interface is complemented by some rather interesting little features. For example, you can choose icons to attach to your messages so that the recipients can see straight away what each message is about. You can even



You only get one manual to share among five users, but the on-line help is comprehensive.

design your own. And, if you don't want to swivel your eyes to and fro, you can get *Snap Mail* to read your messages out loud, though you will need *Speech Manager* for this.

But what happens if the person you're sending mail to doesn't have their Mac switched on? *Snap Mail* will store the message until it can be delivered. And how do you stop prying eyes from reading your mail? Simple – there's a password system.

But what if you want to send a message to someone on the Internet? That's a good question. *Snap Mail* is designed for office networks, but it can also interface with the outside world. It does this via 'services' you can buy separately – and there are services for other e-mail systems and the Internet.

Net gain

Services are installed on a single Mac on the network, which is then designated as a central server. In this mode, *Snap Mail* uses the 'server' Mac to collect mail from the others and send them out in one batch. This is very useful because it means you don't have to spend money leaving the connection open all day.

Snap Mail 2 is perfect for small, and preferably un-hierarchic or even anarchic, office networks. Like the Internet itself, it's unpoliced (and unpoliceable). It's very fast, very easy and very open to abuse! And with the Internet Service it's an inexpensive, efficient and flexible way to connect an entire set of office workers with each other and the outside world.

SNAP MAIL 2.0

Price: £205.63 (five-user pack). **Out:** now.
Requires: any Mac, 2Mb of RAM, System 6.04 or later, AppleTalk or EtherNet network.
Contact: Softline on 0181 401 1234.

FEATURES 89%
Everything you could want for informal networked e-mail – all it lacks is direct Internet connectivity as standard, but this is easy to add later.

EASE OF USE 95%
It's like going back to the Mac's friendly, utterly simple beginnings.

DOCUMENTATION 81%
Clear, simple and easy to follow, but there's only one manual, with just a quick reference guide for each user.

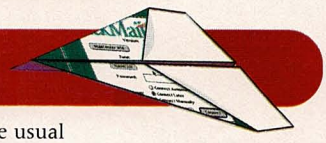
VALUE FOR MONEY 85%
It works out at around £40 per user, which isn't at all bad.

MACFORMAT RATING 90%

MORE

Adding the 'Hologate' Internet service costs about the same again as the basic *Snap Mail* package. If you're interested, take a look at the Casady & Greene Web site at **http://casadyg.com/** Unfortunately, there's no direct import arrangement with any supplier in the UK at present.

QuickMail 3.5



Serious companies need serious e-mail software. Can *QuickMail's* server-client system cope with different platforms, multi-part networks and e-mail junkies?

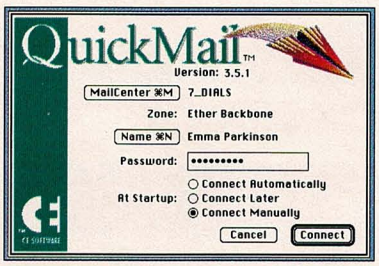
Anarchy can be fun. It can also be a pain in the neck. And while an application like *Snap Mail* may be perfect for inter-office e-mail over a small network, it will give the system administrator of any large office complex a total nightmare.

Large networks are much more difficult to set up and maintain than little AppleTalk zones. And yet staff and management still expect to be able to communicate with each other at lightning speed and are the first to kick up a fuss if the network slows to a crawl as a result of all the traffic.

Who's in charge?

The only way to gain control over a large network is to use a client-server system, where the administrator controls a mail server that collects e-mail messages and distributes them to their recipients. In this way, the administrator can control who is on the network and who isn't, monitor the general network traffic and make sure that the system isn't being abused with either flippant communications (heaven forbid!) or huge file transfers. CE Software's *QuickMail 3.5* is designed to do just this, and is sold in packs starting at 50 users and working up from there.

The difference between *QuickMail* and *Snap Mail* is that the *QuickMail* package has two sets of software: one for the system administrator (to run on the mail server) and one for the individual users.



QuickMail runs in the background, so you can log on in the morning and just forget about it.

The administrator software is quite complex because it may have to provide support for multiple 'mail centres' (sub-networks), 'bridges' with other systems and 'gateways' to the Internet.

The user's view

Fortunately, things are a lot simpler at the 'client' end. Indeed, it's not unlike using a dial-up account with an Internet service provider. Just as you have to connect to your Internet account to download mail, so you have to connect to the *QuickMail* server to check for messages.

However, unlike an Internet connection, keeping your connection to the *QuickMail* server open doesn't cost you any money, so the usual routine is to have *QuickMail* launch automatically as your Mac starts up. The other difference is that when you read a *QuickMail* message you're simply looking at a file kept on the server. You need to 'file' it on your own machine to download a copy and, indeed, to free up space on the server.

In other respects, the *QuickMail* client software – the part you actually see on your Mac – is very similar to the other e-mail applications we've looked at. You can study a list of messages, together with tabulated sender, date, priority and other information, and sort your messages according to these criteria. And when you file your messages, you can save them in folders that you've created and named yourself.

The equivalent to the **Out Boxes** of other applications is the **Mail Log** – you can study this to find out whether messages have been read or are waiting pending delivery to another network or system, and to check that messages you subsequently thought twice about really have been **Unsent** (you can do this, provided the recipient hasn't already read them – useful if you suddenly change your mind about that scathing resignation letter

SPELL IT OUT

QuickMail 3.5 can check the spelling in your messages and enables you to build custom dictionaries.

DEALING WITH DOSSERS

QuickMail 3.5 is also available in PC versions, making it easy for administrators to link up networks running on two different platforms.

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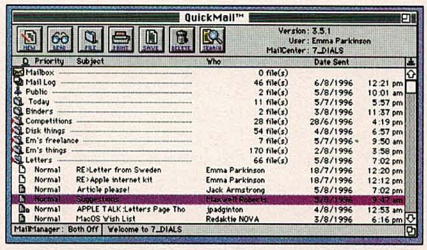
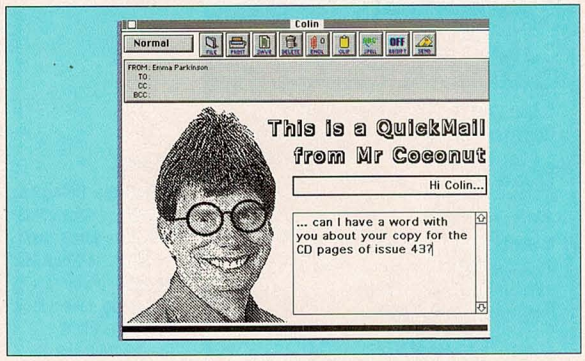


You can establish your own folders to store your mail, but unfortunately *QuickMail* doesn't come with a 'nesting' option.



If the standard *QuickMail* forms don't convey your thoughts, you can always create your own!

or inadvertantly send a personal message to everyone on the network).

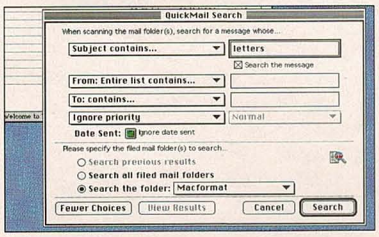
New features for *QuickMail 3.5* include stylised text within messages (about time, too), drag-and-drop support, an America OnLine gateway and a server-based mail manager.

This last feature is simpler than it sounds. *QuickMail's* **Mail Manager** is a system for filtering incoming messages and filing them, deleting them or redirecting them according to their contents. Rather cleverly, in the latest version of *QuickMail* this can be done by the server, so that your mail is processed without you even having to connect and without your Mac's processor having to lift a digit.

Version 3.5 also supports live conferencing (called *QuickConference*) via a separate application that can run in the background without disturbing your work (should you be doing any).

Other neat tricks and gadgets? As well as being able to attach sounds and images to your messages, there's a **Public** bulletin board, where you can post messages you want everyone to be able to read. This is ideal for low-priority messages, such as new phone number lists or information about the company's annual picnic.

You can also compose messages using a variety of pre-configured forms, as well as designing your own. If you want to know exactly when people read your messages, you can get *QuickMail* to send you a confirmation note, and you can also delay delivery of especially vitriolic e-mail until you've left the office for the night or hidden under your desk.

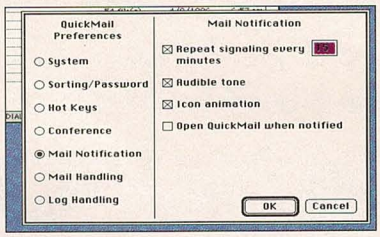


There are a variety of ways to store and search through your filed mail.

Tagging along

There are flaws, though. Although you can enclose files with your messages, you're limited to a maximum of 16 per message, and you can't enclose whole folders. It's nice that you can read a message without having to download all its enclosures, but the attached file handling is still primitive compared to that of other e-mail applications. You can't nest mailboxes within mailboxes, which can be frustrating in a company of several hundred people spread across numerous different departments. And the address book doesn't have the 'find-as-you-type' name finding function that's becoming standard in even the most basic personal e-mail packages.

That said, *QuickMail 3.5* is a powerful solution for large company networks, and it allows system administrators a good degree of control over the network while providing users with a highly competent mail program. **MF**



You can easily configure all the *QuickMail* preferences to suit your needs.

QUICKMAIL 3.5

Price: Single-user pack: £152.70; 50-user pack: £1,880. **Out:** now.
Requires: (client) LC or better, 5Mb of RAM, System 7.0 or later; (server) LC or better, 8Mb of RAM, System 7.0 or later.
Contact: Computers Unlimited on 0181 200 8282.

FEATURES 86%
Good server software combined with a competent client application.

EASE OF USE 80%
At the server end, about as simple as it gets; at the client end, a little 'corporate' and stiff, but straightforward.

DOCUMENTATION 72%
Good manuals for the administrator and well-designed leaflets for the users – but only five? Let's hope all the users on the network have good memories.

VALUE FOR MONEY 81%
Obviously a choice for larger companies only, but probably the most suitable product on the market, giving you good value if bought in large numbers.

MACFORMAT RATING 79%

SO, WHICH ONE IS RIGHT FOR YOU?

So, faced with this kind of a selection, which package is right for you? It's immediately obvious that a home user's requirements are very different from those of users connected to an office network.

Claris Em@iler 1 and *Eudora Pro 3* are both suitable programs if you're on your own but need more software muscle than is available from your Web browsing application. They offer similar features – **In** and **Out** boxes, **Address Books** and a range of sorting and filing attributes – so what's the difference?

In a nutshell, *Eudora* has been recommended by professionals for years, but until recently it was just that – a professionals' program. It certainly has a very wide range of features, including a 'nesting' file system and the option to add live URLs to your e-mails, but by the same token, the interface suffers from complexity and the set-up options can be bewildering if you're a beginner. The look and feel is improving, though, and the straightforward documentation is a bonus.

Claris Em@iler has arrived on the e-mail scene more recently and benefits from a logical, attractive interface, but, as a slightly cheaper application, lacks some of the more unusual features offered by *Eudora*. However, the **Destinations** and **Locations** options are very useful. Both of these save you a great deal of time and trouble when it comes to setting up addresses – both those of other people and, more importantly, your own.

On balance, *Eudora* is probably your best bet. It costs only £13 more, and for that you get enough extra features to make your life comfortable. More importantly, the standard of the documentation and on-line help is very high – something that's particularly useful if you're entering the world of high-level e-mail use for the first time.

But on the other hand...

If you're in a position to make (or influence) decisions about your office e-mail system, then the choice that faces you is somewhat more complicated. While the Classic-award-winning *Snap Mail 2* is simple, intuitive, quick and feature packed, it is also likely to make your Systems Manager cry with frustration if you work in a large company. It's anarchic, yet beautifully simple to use, requires no mail centres and only depends on a server if you want to add additional external mail services – something that can be done very economically. It also has some nice touches – the alert system for quick reminders and the icons that let you know what your messages are about, to name but two.

QuickMail 3.5 is a different kettle of fish altogether. It's a serious program for large companies, including firms that are spread over several sites – and yet it can't create a 'nested' mailbox system to help you cope with sub-departments and the like. Otherwise it is very strong on all the standard features, and it gives your Systems Manager a high degree of control over the network.

At the user's end, it offers a very serviceable, relatively intuitive interface, plus handy features such as *QuickConference* and the ability to create custom 'forms'. However, as a trade-off, *QM* hogs a lot of your RAM, and the 'Mail Manager' has a tendency to freeze whatever you're doing while it sorts your incoming messages. In this sense, it's a very 'corporate' choice: great for the company, okay for you.

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Enterprise plc, 64 Bucks Road, Douglas, Isle of Man IM1 3AF.

Norton Utilities 3.2

The premier Mac repair kit has had an upgrade itself. Derek Smith finds out if this makes *Norton Utilities* the essential Desktop toolbox for maintaining your Mac.

NEW FEATURES

Version 3.2 adds more PowerMac native code, support for large volumes, support for Mac clones, and compatibility with IDE hard disks (found in some Performa models).

STARTUP DISK BUILDER

This *Norton* utility can create a startup floppy disk with *Disk Doctor* or *Speed Disk* on it. Unfortunately, it's now nearly impossible to fit all the files necessary to start a modern Mac onto a single floppy, so you may need to boot from a System CD.

If anyone tries to tell you that Macs are simple to own and use, don't believe them. It's a lie. Admittedly Macs are much easier to work with than PCs, and Windows 95 is a pale imitation of System 7. Amigas are antiquated, STs are dead, Unix is a dinosaur, and OS2 Warp is a myth. But don't be fooled, that still doesn't make Macs easy.

At the heart of your Mac is the hard disk, that one moving part in a largely static machine. This spins at high speed all day long, with a read/write head precariously balanced a fraction of a millimetre above it. Problems *will* occur. Files will corrupt, data will disappear, and your Mac will slow down.

But wait a minute, this is the Mac, home of the happy ending, so *Norton Utilities* is here to solve your problems. As the name suggests, it's a collection of separate utilities, each addressing specific problems that you might have with your Mac.

Doctor for your disk

That the hard disk appears so straightforward is part of the beauty of the Mac. Every file has an icon, and these can be moved and deleted at will. But if your disk appears to operate as smoothly as a swan, you can be sure that's because its digital feet are paddling like mad beneath the surface.

It's very common for minor disk errors to creep in, especially if you create and delete many files. While these problems usually have minimal impact, small errors have a habit of growing into large errors. *Disk Doctor* can solve these problems and keep your data safe. Best of all, it needs no more one click of a button for its repair work to start.

Disk Doctor, a utility to maintain and repair your hard disk, is at the core of *Norton*. Surrounding this core is a suite of further utilities to improve disk performance, retrieve deleted files, back up your data, and test the speed of your whole system.

Two years to upgrade

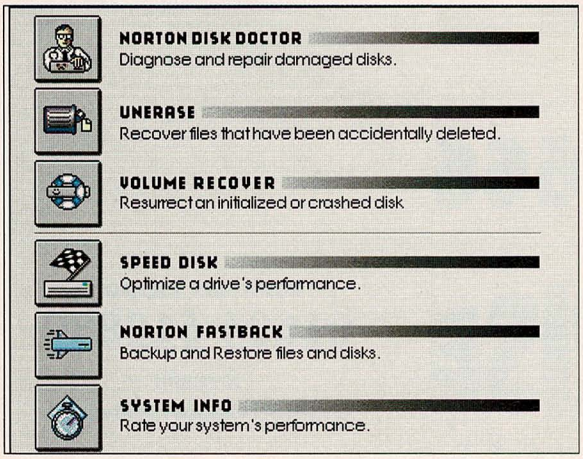
Norton Utilities has been around a while now, and frankly it's starting to look a little dated. Some of the utilities are intended to help with deficiencies in the System software that have long since been fixed in System 7.

Two years ago, in MACFORMAT 18, we reviewed *Norton 3.0*, and really the updated features in version 3.2 are superficial. It's not even fully PowerMac native yet!

However, *Norton* can be crucial to keeping your Mac in proper working order. The alternative is to buy *MacTools*, which is also produced by Symantec, now that Symantec owns Central Point. Although it is a highly-regarded product, *MacTools'* future is in doubt since Symantec might not want two of its own products competing head to head.

At a street price of around £100, *Norton* may seem expensive for a program that doesn't give you visible benefits. However, you have to consider how valuable your data integrity and peace of mind are to you. **MF**

Norton Utilities is a suite of disk diagnostic and management programs. What they can do for you is explained in detail opposite...



NORTON UTILITIES 3.2

Price: £116. Upgrade from any previous version £45 **Out:** Now
Requires: System 7, 2Mb free RAM.
Contact: Symantec on 01628 592222

FEATURES 80%
Good range, but nothing new over previous versions.

EASE OF USE 92%
A doddle to use, often requiring just one click of a button.

DOCUMENTATION 90%
Slightly muddled, but comprehensive, with plenty of background

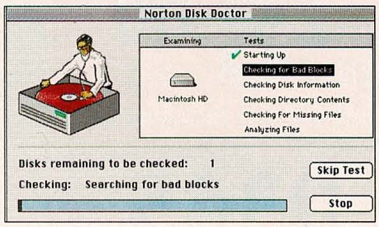
VALUE FOR MONEY 82%
Upgrade price is too high for so few enhancements.

MACFORMAT RATING 88%

DISKLIGHT

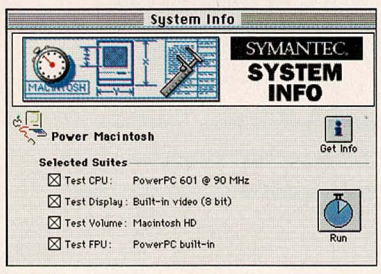
This Control Panel causes an icon to flash in the menu bar every time a hard disk or floppy disk is accessed. Most IBM-compatible PCs have a built-in light to show when the hard drive is accessed, but no current Mac does this. *DiskLight* is useful for seeing what your Mac is up to, especially if you suspect that is has frozen. However, it can slow down disk access a bit.

DISK DOCTOR



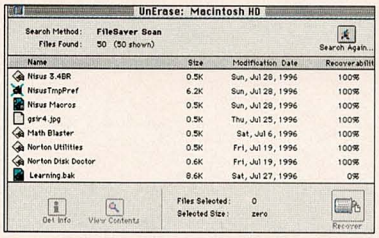
The main reason for buying *Norton Utilities*, *Disk Doctor* can repair the normal damage that occurs to all hard disks in ordinary use. It's the equivalent of taking your car to the garage for a service. It can fix the majority of errors that it encounters, although in some cases even *Disk Doctor* can't help. In these cases, you do at least know to back up all your files, reformat your hard disk, then copy everything back.

SYSTEM INFO



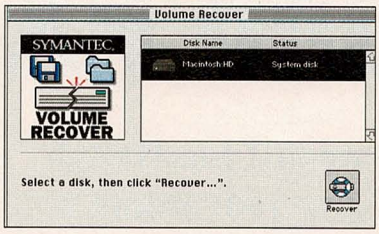
Is your Mac up to speed? Is a 7200/75 faster than the older 7100/80? The answers to these questions, and not many more, lie in *System Info*, which runs a comprehensive series of speed tests. You can use the results to compare how fast your Mac runs under different conditions. How much, for instance, does a RAM Cache card speed your Mac up? *System Info* can also be used to compare the speeds of different Macs, and the utility comes with a set of results to compare with your machine. Unfortunately the list is out of date, with no PCI Macs included.

UNERASE



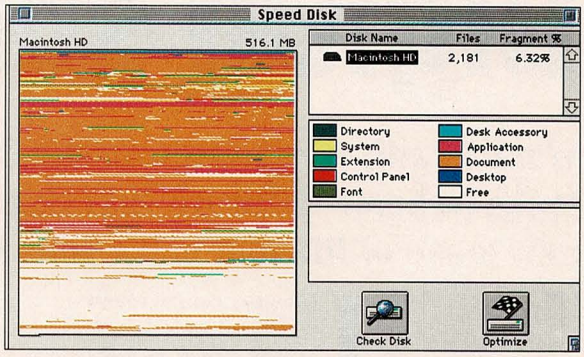
UnErase can recover a file even after you empty the Wastebasket. This is made possible by the way your Mac deletes files, or rather doesn't. Imagine you have a video tape full of snippets of TV, with a list of what they are and where each one starts. You decide to get rid of that old episode of *Dad's Army* (because it'll be shown again soon anyway). You rub out its reference from the contents list. Later, someone wants to record an episode of *EastEnders*, sees the free half an hour on the contents list, and records over that portion of the tape. Till that point, *Dad's Army* was recoverable. Mac files are just the same. Only their reference is deleted from the disk, not the actual file. This means they can be recovered until something is saved over the place they used to be.

VOL. RECOVER



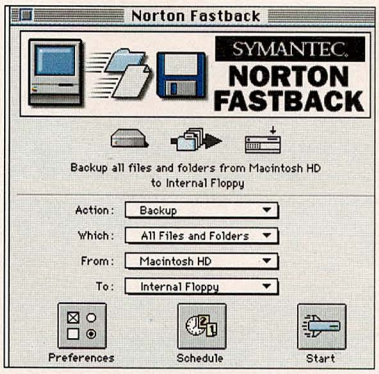
Under certain conditions, serious problems can occur that cause your hard disk to fail in a big way. If *Disk Doctor* can't fix it, then *Volume Recover* may be able to use data created by *FileSaver* to restore the hard disk. If that doesn't work, or you don't use *FileSaver*, then your only recourse is to try retrieving everything to another disk with *UnErase*.

SPEED DISK



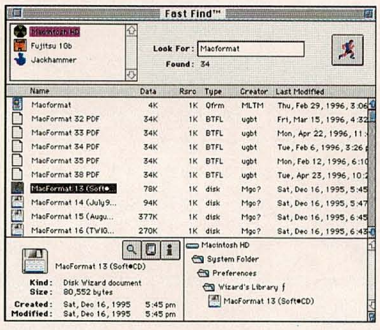
Files on your hard disk are fragmented – fact of life. When you save a file, your Mac makes the best use of all available space by saving a bit here and a bit there. In itself this isn't a problem, but it can take the Mac a little longer to read those files, causing a little extra wear and tear to the drive mechanism. *Speed Disk* aims to minimise this by rejoining all the disparate pieces. (However, the easiest – and safest – way to defragment a hard disk is to copy all its contents to another, initialise the original, then copy everything back again.)

FASTBACK



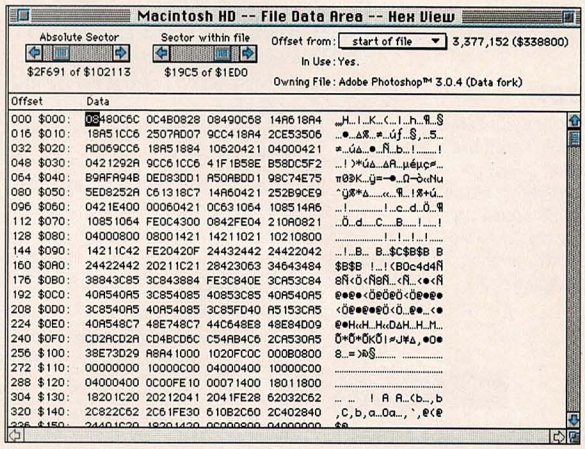
The *Norton* manual constantly recommends that you back up your files, so it's only appropriate that it provides *Fastback* to back up your entire hard disk, or certain portions of it, or just the files that have changed since the last back-up. Back-ups can be made to floppies, other disk drives, or tapes. Although you can schedule back-ups, *Fastback* is nowhere as sophisticated as a dedicated back-up programs such as *Retrospect*, but it is ideal for home and light business use.

FAST FIND



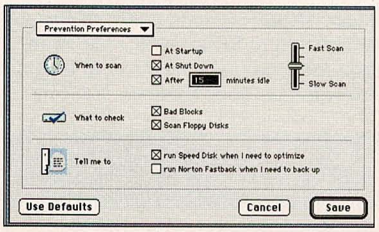
This application is similar to the Mac's built-in utility for finding files, except that – in keeping with its name – *Fast Find* is faster. It was originally introduced during early versions of the System software when Apple's own **Find** utility was crude. However, Apple's current **Find File** is much more flexible and powerful, and in every important respect has overtaken *Fast Find*.

DISK EDITOR



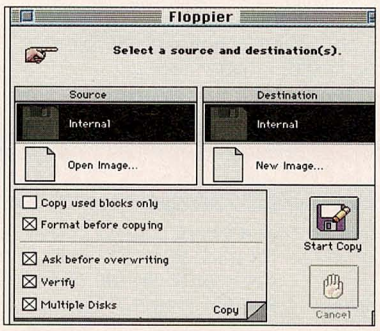
The *Disk Editor* will find favour with hard core hackers and the terminally curious. It enables you to view and alter files at their most basic level on the disk, byte by byte. The manual gives plenty of warnings that this is a very good way to lose all your data unless you really know what you're doing. Best keep this one under lock and key.

FILESAVER



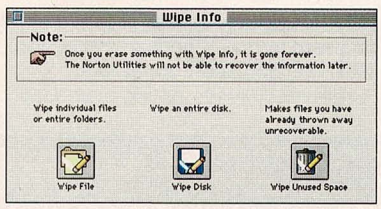
This Control Panel scans your hard disk for problems during periods of inactivity. If *FileSaver* discovers anything untoward, it alerts you, so that you can run *Disk Doctor*. It also makes its own record of your hard disk and files, so that in the event of a major problem you should be able to use *Volume Recover*. It also increases the chance of *UnErase* being able to retrieve files.

FLOPPIER



Floppier is supposed to be your handy companion for all things floppy, though it is now dated and not a lot of use. One useful thing it can do, though, is make an exact copy of a disk. Normally, when you copy the contents of one disk onto another, the two disks are not identical. Sure, they have the same files, but they are subtly different. So what? Well, some installation programs will only run from their original disks. So if you want to make a back-up for security, use *Floppier*.

WIPE INFO


Wipe Info
Note:
Once you erase something with Wipe Info, it is gone forever. The Norton Utilities will not be able to recover the information later.
Wipe individual files or entire folders.
Wipe an entire disk.
Makes files you have already thrown away unrecoverable.
Wipe File
Wipe Disk
Wipe Unused Space

Among a host of utilities designed to save data, *Wipe Info* is designed to destroy it... permanently. *UnErase* is useful for retrieving data, but that can pose a security threat. There have been cases of people unerasing second-hand disks, only to discover proof of a government cover-up or the existence of aliens. Or was that an episode of the *X-Files*? Anyway, *Wipe Info* can delete files themselves, rather than just their references, making them unrecoverable – even using *UnErase*.

UNERASE

Because Virtual Memory constantly writes to your hard disk, having it turned on greatly reduces the chances of *UnErase* working.

Digital sound FX

Want to add effects to your digital audio? Ian Waugh looks at some software that could give your sound a new lease of life and make your hardware redundant.

If you use natural sound – whether it's vocals, acoustic instruments or samples – digital audio offers many advantages over traditional audio tape recorders. With your Mac, you can isolate and edit the smallest section of a recording with ease, and then cut, copy and paste it in ways which would be simply impossible with a tape-based system.

You can also process your sound, applying effects such as reverb, delay and EQ, all within the digital domain. This is much more flexible than using an external effects unit, as you can apply an effect to any part of a recording. As the sound stays digital during editing and processing, the result is cleaner and untarnished by noise which can be inadvertently added by using external devices.

Many digital audio editors include a range of effects, although few have a truly comprehensive selection, so it's useful to have a collection in your digital arsenal to call on when required. *Hyperprism* and *CyberSound FX* come from opposite ends of the digital audio processing scale.

Hyperprism

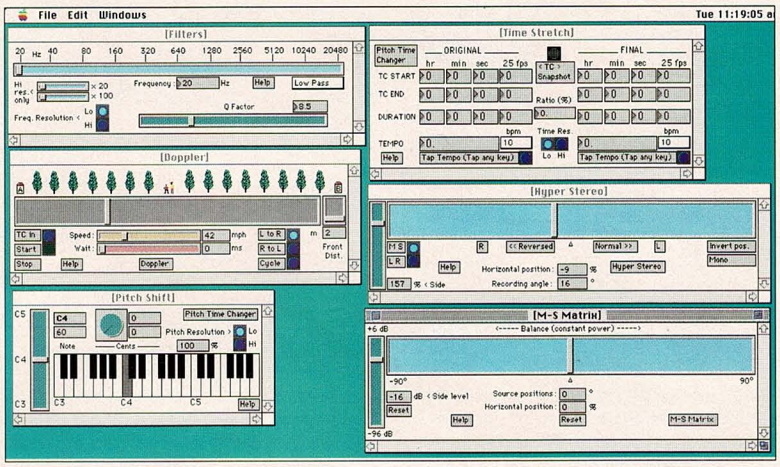
TDM
Digidesign's TDM or Time Divsion Multiplexing (sounds impressive, eh?) is a sophisticated system for sharing sound files among several computers.

Hyperprism is unique in the world of processing software in that it enables you to apply effects to an audio file and manipulate them in real-time either using the mouse or via MIDI. There are three versions of the program: the stand-alone version for the Mac contains 29 effects, the PowerMac version has 18 effects and the latest TDM plug-in version has 23 effects. We're looking at the stand-alone version here.

Unfortunately, *Hyperprism* uses a hard disk install system for copy protection, like many music programs. This is where your installation of the program is registered on a master disk. That's fine until you have a serious system crash or hard disk failure, which can wash the installed software down the pan – a damned nusiance. You can, however, use the software without fully installing it, as long as you're prepared to insert the master disk each time you launch the application.

As in all good editors, you can isolate any part of a sound file and process just that section.

Hyperprism works in two modes. In **Thru** mode it effectively (sorry!) works like an external effects unit and processes incoming audio. This could be from an analogue source such as a microphone or, if you're using a Digidesign system, through the card's digital input. In **File** mode it processes a pre-recorded audio file, which must be in SDII or AIFF format.

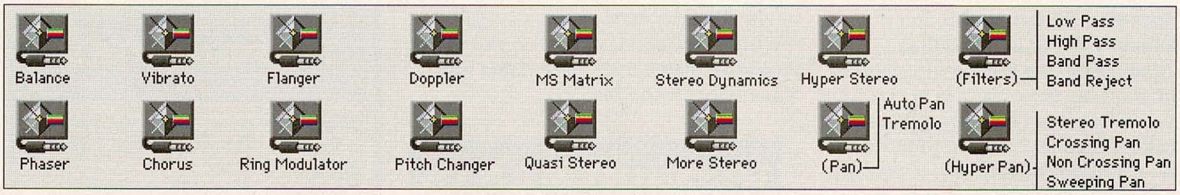


Hyperprism enables you to choose between intuitive mouse control or more precise panel controls (above) to create an impressive range of effects to alter your sound files.

Processing is non-destructive – your original samples are never altered. *Hyperprism* only records the changes you make to the effect parameters and saves them as a *Hyperprism* document. You can therefore create many different versions or variations of each piece without using lots of disk space. When you're happy with a variation, you can generate a new sound file that incorporates your changes. You can

Hyperprism effects

- **Low Pass, High Pass, Band Pass, Band Reject:** filters to blank out part of the sound.
- **Phaser, Flanger, Chorus:** a range of effects produced by delaying the signal and mixing it with the original.
- **Single Delay, Multi Delay, Echo:** various echo effects.
- **Ring Modulator:** modulates the sound with a second signal, producing a metallic effect.
- **Frequency Shifter:** similar to Ring Modulation, but modulates the harmonic components of the sound.
- **Ring Shifter:** combines Ring Modulation and Frequency Shifting.
- **Pitch Follower, Envelope Follower:** apply the pitch and volume envelope of one sound to another sound.
- **Doppler:** changes the pitch of a sound from high to low. For example, if you listen to a train as it passes you, the change in the pitch of the noise you hear is the result of the Doppler effect.
- **Pitch Time Changer:** enables you to modify the playback speed and pitch independently.
- **Tremolo, Vibrato:** these vary the amplitude and pitch respectively of the sound in an oscillating manner.
- **Stereo Dynamics, Balance, More Stereo, Hyper Stereo, Quasi Stereo, M-S Matrix (Mid-Side or Mono-Stereo):** enable you to move and manipulate the stereo image in various ways, even increasing the stereo spread of the sound and creating a stereo image from a mono source.
- **Stereo Tremolo:** creates the impression that the signal is criss-crossing in space.
- **Crossing Pan, Sweeping Pan, Hyper Pan:** create various panning effects.



Hyperprism TDM comes with cute icons to highlight the effects.

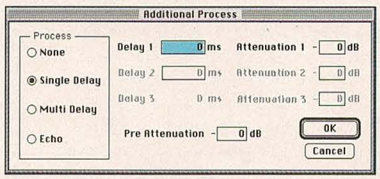
then apply other processes to that file if you wish.

Through the Blue Window

The basic method of working is the same for all effects. Selecting an effect from the **Processes** menu opens a blue window. Clicking the mouse within this window plays the file.As you move the mouse, a tracer draws the movement in the window, changing the effect parameters.

Take the **Pitch Time Changer** effect as an example. If you move the mouse up, the pitch rises; moving it down lowers the pitch; moving it right increases the speed and moving it left slows it down. You can play fast and loose with this and create all sorts of wild and wacky effects. There are options to limit the changes, however, and these help you create meaningful results rather than something which sounds like a demented DJ on helium playing his turntables in a pool of jelly.

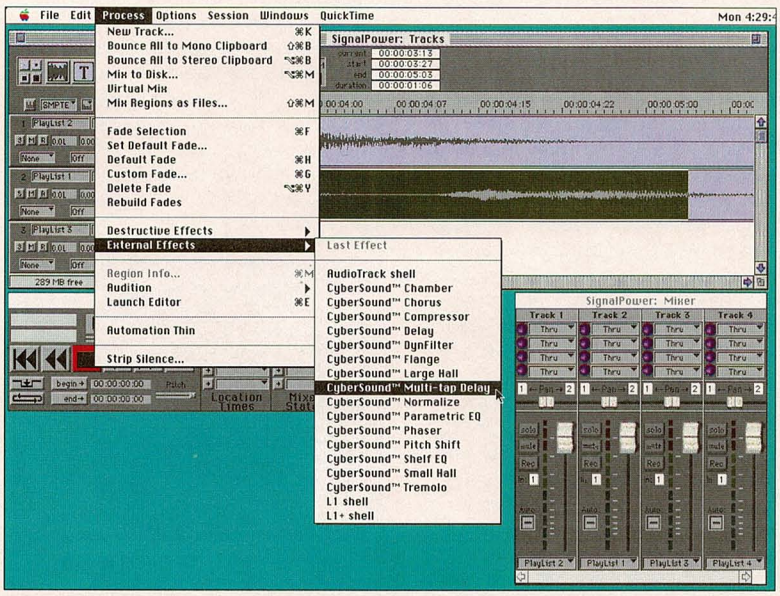
You can also create effects via MIDI.



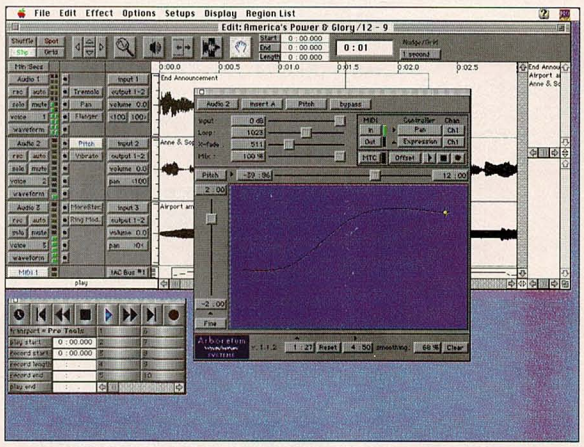
You can apply up to two effects simultaneously using the **Additional Process** window.

This requires the *Apple MIDI Manager* (part of your System) or Opcode's *Open Music System*, which is supplied in the package. You can map just about any MIDI message to any *Hyperprism* function and even control the movement of the tracer from a MIDI keyboard. However, it's likely that you won't find this quite as responsive as using the mouse.

You can create MIDI data in a sequencer running concurrently with *Hyperprism* and use that to control the effects. This is the only way to edit a set of changes as once you've wiggled the mouse in the window, you can't edit any of the individual movements.



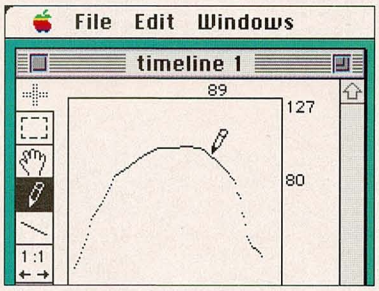
The **Consoles** offer additional control over the creation of *Hyperprism* effects...



Hyperprism TDM integrates extremely well into Digidesign's *Pro Tools*.

If you devise a particularly good effect, you can reassign the *Hyperprism* document to another sound file. As in all good editors, you can also isolate any part of a sound file and process just that section. This is done by adjusting time counters numerically. If you're used to working with waveforms while editing, the inclusion of a waveform display would have made things more intuitive.

The pack includes a set of applications called **Consoles** (written with Opcode's Max, a music programming language). These offer you more control over the effects, including methods of automatic parameter generation that would not be possible



Using the **Consoles** you can draw changes into your sound outside of the real-time function.

Continued on next page

SDII

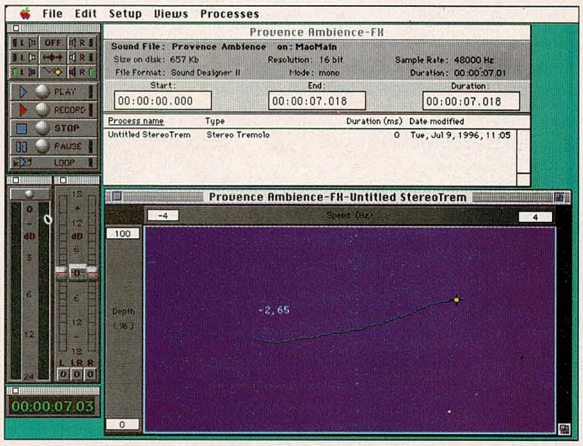
Sound Designer II, an audio file format developed by Digidesign for its program of the same name.

WHAT'S DIGITAL AUDIO?

Digital audio is simply the conversion of analogue sound into a series of numbers using a device called an Analogue-to-Digital Converter or ADC. The first mainstream use was the sampler, where sound is converted into numbers and stored in your Mac's RAM. Developments in computer technology led to direct-to-disk recording, where digital audio data is saved directly to disk. As hard disks are much cheaper than RAM, this is obviously a more cost-effective process.

As a series of numbers, digital audio data can be manipulated to the *n*th degree. Cutting and pasting the smallest part of a sound is extremely easy. Using suitable algorithms, your software can add a whole host of effects such as reverb, echo, delay and EQ to any part of a sound.

Now is that a good use for technology or what?



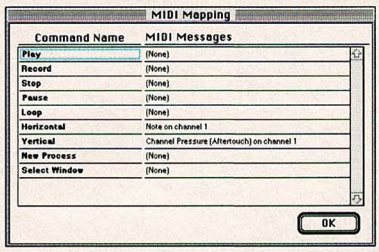
Change an effect in real time with the mouse in *Hyperprism's* blue window.

AIFF
Audio Interchange File Format, a popular cross-platform audio file format.

otherwise. Bit techie, this, but it's definitely worth investigating.

Hyperprism is a fascinating, packed program. As the control is in real time (you'll hear the results as soon as you make a change), you can produce some amazing effects with it. But this makes it more difficult in turn to set up the type of precise effect you could make with an external effects unit or non-real-time processor software.

Basically, if you work with digital audio you should try *Hyperprism*. It's the digital audio equivalent of twiddling the dials on an analogue synthesiser, and it's probably the most creative digital audio processing tool available for the Mac.



You can control many of *Hyperprism's* functions via your MIDI set-up if you prefer.

REQUIREMENTS

There are three separate versions of *Hyperprism*. The Mac version requires any Mac (Quadra recommended), a Digidesign digital audio card (such as the Audiomedia II), *DigiSystem* INIT version 2.6 or later (supplied with the card). The PowerMac version works on any PowerMac without any extra card. The TDM version requires any Mac using a TDM-compatible program such as Digidesign's *Pro Tools III*. TDM is typically used in a professional recording studio or production facility. All versions require 5Mb of RAM (8Mb recommended) and System 7 or later.

HYPERPRISM

Price: stand-alone v1.5.5; for Mac, £404.20, or PowerMac, £270.25; TDM v1.0.1, £699.
Out: now.
Contact: Unity Audio on 01920 822890.

FEATURES 88%
Bags of effects, lots of parameters and unique methods of control.

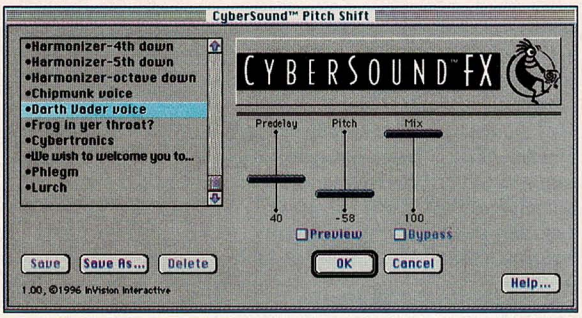
EASE OF USE 82%
Easy to use, but not always easy to create exact effects with the mouse.

DOCUMENTATION 86%
Well written, with good explanations and diagrams where needed.

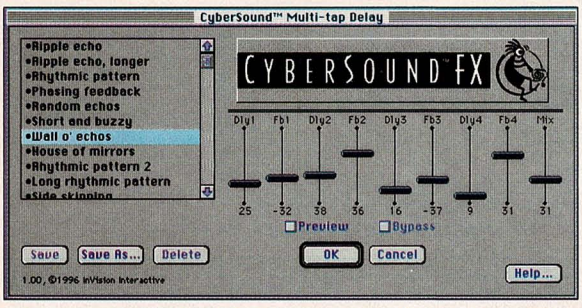
VALUE FOR MONEY 84%
Digital audio software is traditionally expensive but *Hyperprism* gives you a lot for your money. The PowerMac version has fewer effects but you don't need a card.

MACFORMAT RATING 86%

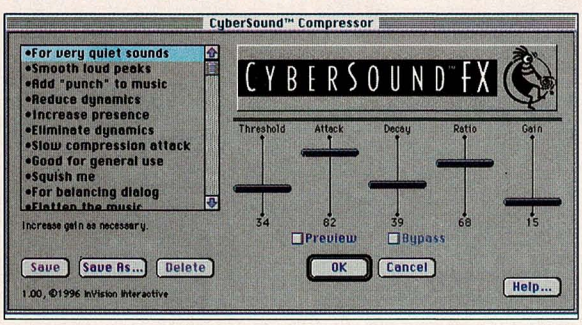
CyberSound FX



The controls in *CyberSound FX* vary according to the effect you're using, ranging from three sliders on the **Pitch Shift** effect...



...To this multi-slidered **Multi-Tap Delay** effect. Each effect box has several preset templates, which appear in the list on the left.



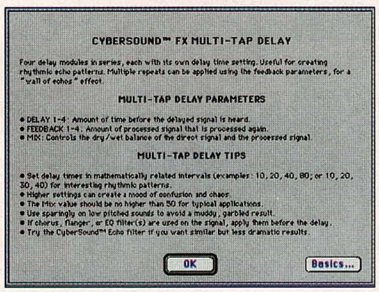
The *CyberSound FX* **Compressor** includes a range of effects for tidying up dynamic variations, both correctively and creatively.

CyberSound FX is a plug-in you can use with some other audio programs to process and convert sound, adding special effects to create impact. It comes in two versions – one for Macromedia's *SoundEdit 16* (which scored 80% when reviewed in MACFORMAT 36) and one for *Adobe Premiere*. They both contain exactly the same set of 15 effects and they both work in exactly the same way.

Copy-protection is simply a matter of entering a serial number – none of this fitting a dongle or hard disk install malarkey. And, if you send in your registration card, publisher InVision will send you two more plug-ins free of charge.

Each effect has a control panel where you can adjust its parameters using sliders. All the panels look pretty similar but the controls differ according to the effect. Each effect also has several presets or templates which are listed in the left of the panel.

There are well over 200 templates in all. You can make your music file seem as though it's being played in a cathedral, a club or even a bathroom with reverb and EQ (equalisation) templates. Try adding treble or bass to music tracks with poor balance. You can make voices sound like the words are being spoken through a phone or within a booming. echoing cavern. If none of the preset templates produces the exact result you want, you can edit them using a number of sliders


CYBERSOUND™ FX MULTI-TAP DELAY
Four delay modules in series, each with its own delay time setting. Useful for creating rhythmic echo patterns. Multiple repeats can be applied using the feedback parameters, for a "wall of echos" effect.
MULTI-TAP DELAY PARAMETERS
• DELAY 1-4: Amount of time before the delayed signal is heard.
• FEEDBACK 1-4: Amount of processed signal that is processed again.
• MIX: Controls the dry/wet balance of the direct signal and the processed signal.
MULTI-TAP DELAY TIPS
• Set delay times in mathematically related intervals (examples: 10, 20, 40, 80; or 10, 20, 30, 40) for interesting rhythmic patterns.
• Higher settings can create a mood of confusion and chaos.
• The Mix value should be no higher than 50 for typical applications.
• Use sparingly on low pitched sounds to avoid a muddy, garbled result.
• If chorus, flanger, or EQ filter(s) are used on the signal, apply them before the delay.
• Try the CyberSound™ Echo filter if you want similar but less dramatic results.
OK
Basics...

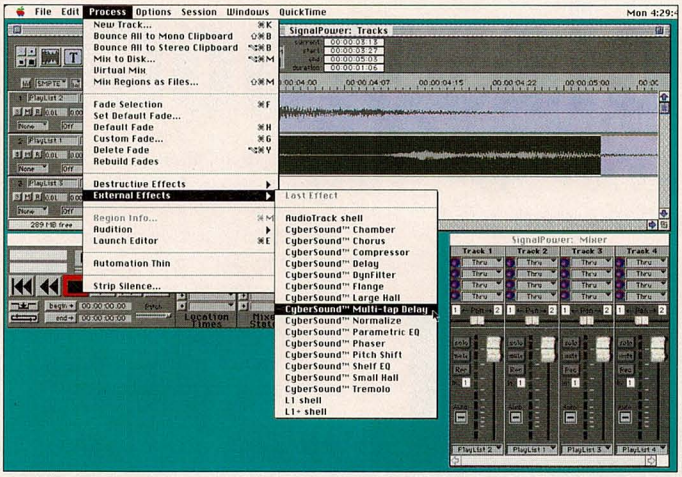
Each *CyberSound* effect has its own on-screen **Help** box, including plenty of useful tips.

TUNE IN TO PLUG-INS

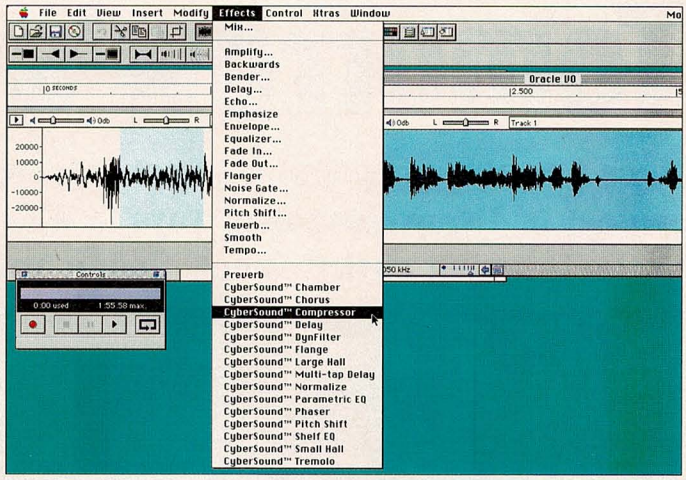
Many pieces of digital audio software are designed to be expandable and you can add to their features through the use of plug-ins. The most common are for Digidesign's professional *Pro Tools* system and are known as TDM plug-ins, but there are also plug-ins available for *Adobe Premiere, SoundEdit 16* and *Sound Designer II*.

Plug-ins work within the parent program and, when installed, usually appear in a menu such as DSP or Process. You can then use the plug-in features as if they were part of the application itself.

Unfortunately, different systems require different plug-ins because their software architecture is different. Effectively this means that you can't use a plug-in written for *Pro Tools* with *Premiere*. When you're looking for audio software, check if the program can support different types of plug-in. Macromedia's *Deck II* and BIAS' *Peak* both support the *Premiere* plug-in system, for example.



In *Deck II*, the *CyberSound FX Premier* plug-ins appear hanging off the **Process** menu.



There's an *FX* plug-in for *SoundEdit 16*, which you access from the **Effects** menu.

and then save them as new templates. It's a bit like having an unlimited number of memories in an external effects unit.

Now read the book

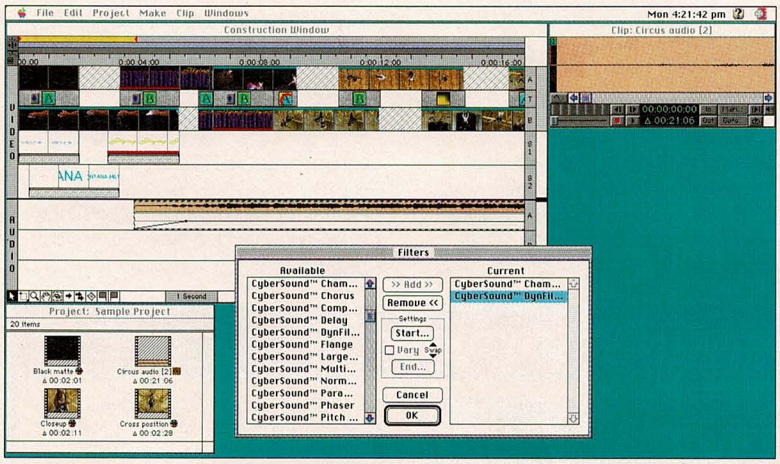
The manual describes what each of the controls does and includes tips on how to get the best, er, effect from the effects. Most of this information – and there's not a lot of it – is duplicated in on-line help. The explanations are quite good and you should have no trouble understanding what each of them does. Everything may not be crystal clear if you're an absolute beginner, although you will soon see – and hear – what everything does, simply by trying out all the effects.

A **Preview** button enables you to hear the result of the effect on your sound. You can cancel it if you don't like it, try one of the other templates, twiddle the controls yourself and apply the effect when you're finally happy.

CyberSound FX is an excellent package. The range of effects and templates means it's similar to buying a large preset effects unit – a device specially made to process sound effects – but with unlimited memory capacity for storing even more.

It's a bit like having an unlimited number of memories in an external effects unit

Okay, it would be easier to visualise some effects if the interface included graphics, but to gripe would be churlish. With many individual plug-ins costing in excess of £350, *CyberSound FX* is an absolute steal at a little over £80. If you're an experienced professional working with a dedicated digital audio system, you may still prefer the flexibility of more specialised and expensive plug-ins. But *CyberSound FX* is an ideal and inexpensive complement for both *Adobe Premiere* and other software that supports this specific system of plug-ins. It's also the perfect accessory if you're on a budget and want to add a few more strings to your digital audio bow. **MF**



The *CyberSound FX* plug-ins for *Adobe Premiere* are selected from the host program's **Filters** menu.

CyberSound Effects

- **Chamber Reverb, Small Hall Reverb, Large Hall Reverb:** these create ambient effects similar to being in rooms of various sizes.
- **Shelf Equaliser:** two-band EQ.
- **Parametric Equaliser:** two-band EQ which enables you to cut and boost any frequencies you like.
- **Compressor:** limits the dynamic range, making the loudest parts quieter and the quieter parts louder.
- **Chorus, Flange, Phaser:** related effects produced by delaying the signal and mixing it with the original.
- **Delay, Multi-Tap Delay:** types of echo effect.
- **Pitch Shifter:** changes the pitch without changing the duration.
- **Dynamic Filter:** specialised tone control which you can use to remove noise from quiet passages in your music, for example.
- **Normalize:** makes a sound as loud as possible before distortion occurs.
- **Tremolo:** modulates the volume of a sound.

CyberSound FX

Price: £81.08. **Out:** now.
Requires: LC or better, 4Mb RAM, System 7.0 or later; *SoundEdit 16* or *Adobe Premiere* (version *3.0* or higher), or any software compatible with *Premiere* plug-ins such as *Deck II* and *Peak*.
Contact: Adobe Shop on 0131 451 6888.

Features 86%
Lots of effects, all editable.

Ease of use 92%
Plug it in and select one of the 200-odd effects. What could be easier?

Documentation 88%
Easy-to-read, simple-to-understand instructions and on-line help.

Value for money 96%
15 FX for just over 80 notes? Someone somewhere has to have made a mistake. Buy it now before it goes up!

MACFORMAT RATING 92%

More CyberSound

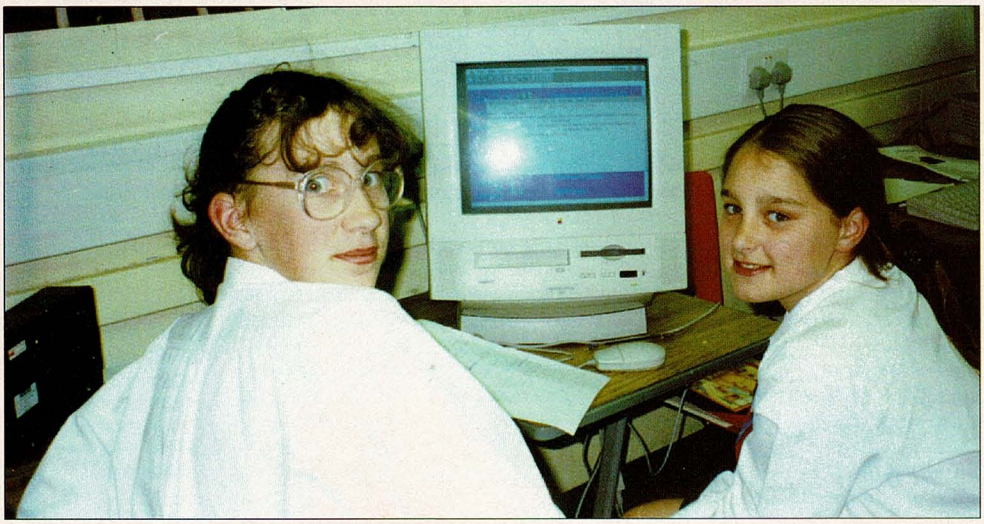
You'll also find *CyberSound VS* in the InVision range. It's a music synthesiser and editor we reviewed in MACFORMAT 40.

Living in the past

We reviewed *SoundEdit 16* in MACFORMAT 36 and *Deck II* in MACFORMAT 38. If you missed either of these issues, turn to page 128 for information on how to get hold of your copy.

Tomorrow's classroom

Macs are already popular in schools, and a new Apple project is discovering new ways in which they can add to the learning environment. Susan Nowak reports.



First years joining the school this autumn will all have access to ACOT classrooms equipped with Performa 5300s and PowerBooks.

There's a revolution taking place inside the rather stark 1950s buildings of St Andrew's High School in Scotland. As the 830 children return from their summer break, they'll find three classrooms and one science lab networked, linked up to the Internet and equipped as Classrooms of Tomorrow by Apple Computer. For the pupils and staff this represents more than just the chance to become familiar with the ins and outs of the latest PowerMacs – it's the chance to be part of a major international education programme.

The Apple Classroom of Tomorrow (ACOT) project was started ten years ago by Apple in the United States as an open-ended research project to investigate how learning in schools would be affected if computer technology were used as routinely as paper and books. To date, no fewer than 20 research papers have been written about the ACOT project. The American experience shows that exposing students to technology as an integral part of their studying environment leads to better attendance and behaviour at school, and in one particular school there has been an eightfold increase in the take-up of college places.

Apple has now decided to extend the project to Europe, starting with St Andrew's High School in Scotland, a primary school in Sweden and a primary school in Belgium. Two other schools in France and Italy will join the scheme during the next year.

ISDN links are being installed, giving the children and staff a fast route to the Internet

Regular investment

It's an investment that will not come cheaply. Apple's European Director of Education, Nigel Turner, has set aside £500,000 for the project during the first year. Obviously the initial investment is the largest one, but part of the success of the programme in the United States has been down to the fact that Apple has regularly updated the equipment installed in the schools, as well as involving staff and students in the work of Apple's Advanced Technology Group.

St Andrew's High School was chosen after a long selection process. When Apple first decided to bring the project to Europe, it made presentations to the government departments responsible for education, such as the Scottish Office, the Department of Education and Employment, the Welsh Office and their supporting agencies. Although everyone was interested, it was the Scottish Office and the Scottish Council for Educational Technology (SCET) who were most in tune with the ideas that Apple was presenting

ACOT ON-LINE

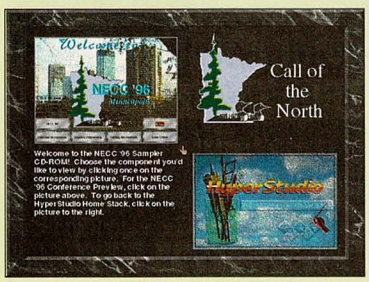
For more details of the ACOT project, visit Apple's ACOT Web site at **http://www.atg.apple.com/acot/**

MAKING IT WORK

If you've got a Mac, you know about *ClarisWorks*. But what about the other software being used in the ACOT project? Alex Summersby summarises.

HyperStudio (reviewed in MACFORMAT 36) is a multimedia authoring program ideally suited for children (and widely used in schools). It can handle graphics in an extensive range of formats at up to 256 colours, and boasts a basic range of paint tools, as well as simple animation functions. Its text support isn't outstanding (you can't style text, for instance, or create hypertext links), but it offers a good overall development environment and comes with a handy selection of images to use in your productions.

Writer's Toolkit, a program developed by SCET, is a word processor with extras designed to make it a complete 'integrated writers' toolkit'. As well as giving you a fully featured word processor, the program takes you step-by-step through a series of seven 'makers', each of which prompts the young writer to think about a different stage of the writing process. You begin by identifying 'Purpose and Audience', then sketch the main points you want to make in the 'NoteMaker' before constructing a working outline in the 'DraftMaker' and then going on to the word processor proper. You can check spelling and punctuation in the 'ProofMaker'. Finally, you can review your progress in the 'RecordMaker'.



HyperStudio makes it easy for children to create exciting multimedia presentations.

- *ClarisWorks 4.0* earned a dazzling rating of 92% in MACFORMAT 31 and costs around £150. For details, contact Claris on 0800 422322.
- For more on *HyperStudio*, contact TAG Developments, 01474 357350.
- For more details on *Writer's Toolkit* (£57.50), contact the Scottish Council for Educational Technology (SCET) on 0141 337 5000.

The teachers' commitment to the ACOT ideals helped bring the project to St Andrew's.

and who were prepared to offer the commitment needed to make the project work.

Having decided on Scotland, then, Apple asked the Director of Education for each Local Authority to nominate schools to take part in the scheme. Twenty schools were nominated and invited to a briefing addressed by Keith Yocam, the director of the ACOT project based at Apple's headquarters in Cupertino. These schools were invited to make a proposal to join the scheme. From the 20, 14 wrote a proposal, and then six schools were short-listed. These six all prepared detailed reports and made presentations to the selection panel, and St Andrew's High School was chosen from this short-list.

Early days

St Andrew's is a Catholic high school in Kirkcaldy, a town of some 55,000 inhabitants which lies on the north side of the Firth of Forth. It was once a centre of the railway and mining industries, but most people now work in local government or light industry, and many commute into Edinburgh each day.

St Andrew's takes children from a large catchment area, extending throughout Fife. The headmaster, Anthony Finn, while proud of his school and the achievements of the children, believes it is an average Scottish high school, possessing neither significant advantages nor disadvantages. However, it was his philosophy of trying to motivate children to succeed at the highest level, and the strength of his staff and their commitment to the ACOT ideals, that won the school the project.

A team of five teachers is involved in the project in the first instance. They have all spent time in the United States, receiving training at ACOT schools in Ohio and Tennessee. For Dee Maloney, the assistant head of English, the thing that most impressed her about American pupils involved with ACOT was their high level of presentation and communication skills, both in explaining how the ACOT equipment works and in particular subject areas – such as English. These skills are becoming increasingly important for pupils in the United Kingdom who want to achieve high grades. High-achieving students on the scheme in the US have the chance to take distance learning courses from Ohio State University using the on-line facilities which are part of the ACOT installation.

Pupils at schools within the ACOT programme in the US must apply to join, and those not showing enough commitment to their studies are asked to leave the programme and go back to the mainstream of the school. This isn't the way they'll run things at St Andrew's High School; all first years joining the school at the end of August will have an ACOT classroom.

Each classroom is equipped with a network of 16 Performa 5300s and PowerBooks. The Performas have 16Mb of RAM and quad-speed CD-ROM drives. Digital cameras and printers are also part of the Apple package. ISDN links have been installed over the summer break, giving the children and staff a fast route to the Internet and enabling them to communicate with the other ACOT schools around the world.

Teacher Development Centre

The children will use the Macs for work in subjects right across the curriculum. As the first-year children become proficient in using them, they will be expected to share their new computer skills with others in the school, so that the benefits of being an ACOT school are extended to everyone.

By the start of 1997, St Andrew's High School will have appointed a manager to run a Teacher Development Centre at the school. It will be the task of this manager to extend the work of ACOT into the wider educational community by organising courses for teachers, initially from other schools in Fife.

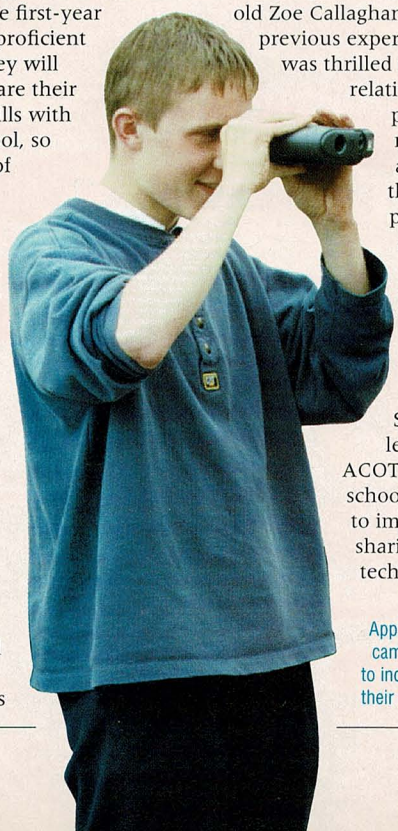
Software support for St Andrew's High School is being supplied by the Scottish Council for Educational Technology. SCET is a charity, and also a company limited by guarantee, which provides training and software advice for schools throughout Scotland. Initially each Mac is being equipped with *HyperStudio*, a low-cost multimedia authoring package; *Writer's Toolkit*, a package to help with writing skills both imaginative and functional; and *Chronicle*, a multimedia package that shows events and information within a chronological framework. *ClarisWorks 4* will also be installed, making the task of producing things such as the school magazine much easier. Children and staff will be able to add their contributions from any machine on the network.

The lessons learnt will help shape policies for information technology in education

Policies for the future

The Local Education Authority in Fife is backing the scheme by investing £40,000 during the next year. This will probably be used to help with the set-up costs of the Teacher's Development Centre. Alec Thompson, the Chair of Fife's Education Committee, intends that the lessons learnt from St Andrew's will help to shape policies for the use of information technology in education throughout the area, for both school children and adults returning to education.

St Andrew's High School has had the first batch of PowerBooks installed for just a matter of weeks, but already the children are using the multimedia tools to produce work. Twelve-year-old Zoe Callaghan, who had no previous experience with Macs, was thrilled to find that it was a relatively simple matter to produce a piece of multimedia work about the launch of the project, incorporating sound, text and images. This augurs well for the future of the project, and headmaster Anthony Finn is confident that while St Andrew's High will learn much from the ACOT experience, the school will also find ways to improve and refine the sharing of tomorrow's technology. **MF**



Apple also provides digital cameras, enabling the pupils to incorporate photographs in their presentations.

ISDN

ISDN, or Integrated Services Digital Network, is a digital system which is slowly replacing the old analogue phone lines that are currently used to transmit computer data. As ISDN transfers information digitally, it is much faster than a phone line – sometimes transferring it as fast as 68Kb per second – but it's also a lot more expensive. Even for the most basic set-up, you can expect to pay £400–600 for the card your Mac will need. The set-up cost for the line itself is about £470, and the line rental is in the region of £100 per quarter. For more information, call BT's ISDN helpline on 0800 181514.

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Lively sciences

Old technology and new technology – used hand in hand to help kids learn.

A Mac can teach kids science, and make it fun too. Richard Wentk tests current titles in the light of the National Curriculum.

Good education software can do children a lot of favours, especially if they're among the 20% of children with special needs. But whether your kids are top of the class or struggling to keep up with new concepts, they can benefit from the chance to work at a speed that's comfortable for them, away from the distractions of a noisy classroom. The key thing is that the **software you choose should complement, extend or reinforce what children are learning in school.**

But with countless educational packages on the market, what should you look for? The first thing to ask is whether your children enjoy playing with a package. If it is still holding their attention after five minutes, there's a good chance it will keep them happy for quite a lot longer. You often can't try software out for yourself, so it's worth asking other parents which titles they've found valuable – although of course not everyone will admit to getting it wrong!

Second, does it support the National Curriculum, either directly in its content or by cultivating appropriate skills and approaches? No learning is wasted, especially if it's fun too, but reinforcing the NC will help your children do better in school too.

Next, is the package intended to be used at home or as part of a structured lesson? Some software is designed for use in schools and needs back-up from a teacher. Other packages can be loaded up and left for your children to use unattended at home.

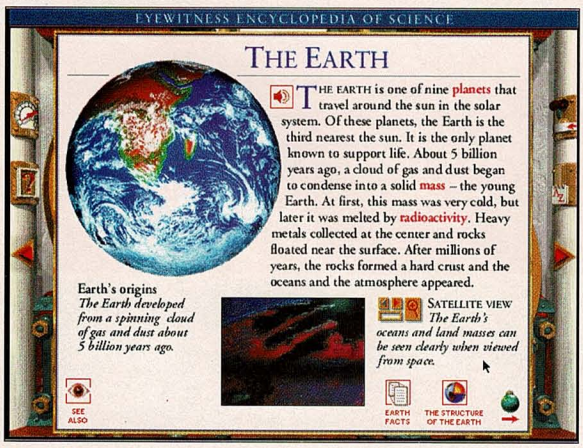
Finally, it's important to find out whether a package is going to teach something your child wouldn't be able to find out any other way. Computers can simulate experiments which are too dangerous or expensive to do at home (or in school!), or can stimulate a child's imagination in a way that a book or normal lesson can't.

Educational multimedia is also good at supplying the bigger picture. Unless you live on a farm or next to a mountain range, you're unlikely to be able to show your kids crop rotation or glaciation at first hand. Your Mac can recreate these and other experiences and get children thinking about the world around them. 'God games' like *SimCity* can not only be fun, but can also be an excellent introduction to logical thought and long-term planning – useful skills which the best software can help develop, without any need to turn to a formal lesson.

As long as your child is learning and being made to think and ask relevant questions – even when the things they learn are disguised as 'fun' – they're learning about practical science, and will spend the rest of their time in school much better equipped to work out the rest for themselves.

Eyewitness Encyclopedia of Science

Birds, bees, radioactivity and supernovas, all together at last.


EYEWITNESS ENCYCLOPEDIA OF SCIENCE
THE EARTH
THE EARTH is one of nine planets that travel around the sun in the solar system. Of these planets, the Earth is the third nearest the sun. It is the only planet known to support life. About 5 billion years ago, a cloud of gas and dust began to condense into a solid mass – the young Earth. At first, this mass was very cold, but later it was melted by radioactivity. Heavy metals collected at the center and rocks floated near the surface. After millions of years, the rocks formed a hard crust and the oceans and the atmosphere appeared.
Earth's origins
The Earth developed from a spinning cloud of gas and dust about 5 billion years ago.
SATELLITE VIEW
The Earth's oceans and land masses can be seen clearly when viewed from space.
SEE ALSO
EARTH FACTS
THE STRUCTURE OF THE EARTH

Why don't any of these satellite photos ever show the view from over Britain?

Dorling Kindersley has one big advantage over other CD-ROM publishers: it has been creating visually stunning encyclopedias for years now. So it's perhaps no surprise that **when this title appeared, it was greeted with rave reviews and journalistic accolades.**

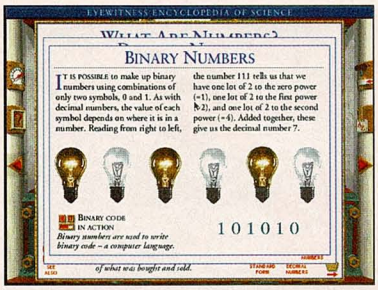
It's easy to see what all the fuss was about. The graphics are gorgeous, the page layouts are rich and detailed and there's plenty to see, plenty to do and plenty to listen to. Each of the subject areas – physics, chemistry, mathematics and 'life sciences' – gets its own section header, with subheadings that appear on the facets of an unfolding decahedron. Choosing a section involves whirrs, buzzes, clicks and eye-catching animations.

Other sections are devoted to the periodic table and basic astronomy. A quiz and a 'who's who' complete the package, and there's the usual collection of on-line help options and search tools to make it easier for beginners to find their way around. The whole thing has bags of atmosphere in a very surreal and *Myst*-like way, and there's no doubt it's a lot of fun to play with too. So, in theory, it's a winner all round – isn't it?

Almost – but not quite. A closer look shows that while the visuals are lush and rich, some of the text is either too trivial, too detailed or too clumsy to do its job properly. Perhaps the designers of *Eyewitness Science* forgot to run their work through one of those word processing options that estimates reading age. As a result, kids who are seeing this material for the first time may be left struggling, even if they do find it entertaining.

That's not to say this title is a waste of time or money – there's plenty here

It's an encyclopaedia *really* – so don't go looking for the red and the blue pages, because there aren't any. Even if it looks like there should be.



Binary numbers can be useful – we think. Unfortunately, the animated version of this explanation leaves quite a lot to the imagination.

to keep anyone who's curious about science happy for at least an evening or two. But it isn't pitched at a specific enough age range or level of knowledge to serve as an educational aid, and that's a shame when the rest of the design is so rich and appealing.

And its relevance to the National Curriculum? It covers most of the basics, but with only the briefest of brief introductions to each topic. For example, the mathematics section includes information about binary numbers, decimal numbers, powers and trigonometry, but there's not much more than a page devoted to each. More detail is needed here – as it stands, the content is too patchy to be useful for reference or for reinforcing what children are learning in school.

Eyewitness Science still looks visually stunning a couple of years after its release, but it's no longer quite the leading edge product it once was. If you're looking for something to spark questions from your offspring, then it may be just what you're after. But if you want a comprehensive science reference work, you may be better off buying them a big, thick illustrated paperback encyclopaedia. It will do a much better job in the long run.

ENCYCLOPEDIA OF SCIENCE

Price: £39.99. **Out:** now. **Age:** all.
Requires: Performa 475 or better, 8Mb of RAM, System 7 or later, 256-colour monitor, double-speed CD-ROM drive.
Contact: Dorling Kindersley on 0171 753 3488.

CURRICULUM RATING 75%

MACFORMAT RATING 73%

KEY STAGES

The National Curriculum is divided into four Key Stages: Key Stage 1 covers 5 to 7 year olds; KS2, 7 to 11 year olds; KS3, 11 to 14 year olds; and KS4, 14 to 16 year olds.

Eyewitness Encyclopedia of Space and the Universe

Just how much of the entire universe will fit onto a single CD-ROM, anyway?

This is a more recent release from Dorling Kindersley, and the difference shows in the greater depth of the information and the greater sophistication of the presentation. The style and approach are familiar, with the same sumptuously rendered and animated on-screen objects, but here the content is more accessible and also more comprehensive. This is no doubt partly because this title sticks more manageably to a single subject area, going into it in more depth.

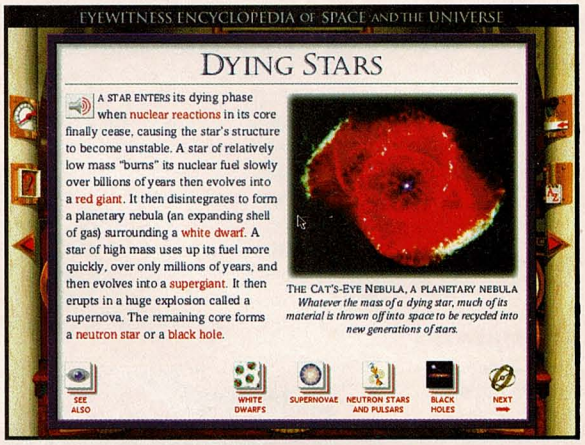
Just about everything that's related to space and astronomy gets a mention here. Kepler's laws, the Big Bang, the life-cycle of stars and theories of General and Special Relativity all get a page or two, and some of the ideas are supported with dazzling graphics or animations. There's a satisfying amount of information about practical space exploration, and this includes details of the latest Hubble, Apollo and Mir missions. Another neat feature is an animated star map that can be set to show the heavens for any date, time and place in the world. This will encourage children to relate their own experience and observation to what they learn theoretically – something that the National Curriculum strongly encourages. In the same vein, this title also answers the perennial question about the bright planet which follows the sun around, and shows you that yes, it really is Venus.

The quiz machine doesn't give you a round of applause when you get all the answers right. Boo!

As in *Eyewitness Science*, a quiz and a couple of games complete the package. These include a version of the old *Lunar Lander* game, which some older readers will be familiar with from its countless incarnations on 8-bit microcomputers and programmable calculators. Ah, nostalgia...

What's missing is an extra helping of detail in the side notes, many of which are disappointingly dry, factual and text oriented when they could be making more use of the magnificent graphics. In one side note an ellipse is described in words instead of with the help of a diagram, while in another infra-red radiation is explained in terms of wavelengths and frequencies, with no mention of its relationship to heat. This slightly abstract approach lets the disc down a little. Science isn't just about facts, but about how they relate to the real world. It's much easier to teach it when that link with everyday life is made clear.

There's also the question of motivation. Even if you get a perfect score in the quiz, it just sits there looking rendered and inscrutable, and that's a frustrating let-down after the build-up you get from the questions. Again, the facts aren't enough – to be really appealing they need a human dimension, and they really need to be presented in a way that's more inspiring and exciting than colourful pictures and simple animations provide for.


EYEWITNESS ENCYCLOPEDIA OF SPACE AND THE UNIVERSE
DYING STARS
A STAR ENTERS its dying phase when nuclear reactions in its core finally cease, causing the star's structure to become unstable. A star of relatively low mass "burns" its nuclear fuel slowly over billions of years then evolves into a red giant. It then disintegrates to form a planetary nebula (an expanding shell of gas) surrounding a white dwarf. A star of high mass uses up its fuel more quickly, over only millions of years, and then evolves into a supergiant. It then erupts in a huge explosion called a supernova. The remaining core forms a neutron star or a black hole.
THE CAT'S-EYE NEBULA, A PLANETARY NEBULA
Whatever the mass of a dying star, much of its material is thrown off into space to be recycled into new generations of stars.
SEE ALSO
WHITE DWARFS
SUPERNOVAE
NEUTRON STARS AND PULSARS
BLACK HOLES
NEXT

Even when old stars are dying, they still manage to put on a show. This encyclopaedia has some wonderful photographs to be amazed by.

These niggles aside, this title has a lot going for it. It's a great introduction to the core requirements of the astronomy section of the National Curriculum up to Key Stage 4, and it's likely to keep your science-mad youngster staring at the screen for hours on end. With just a little more thought put into considerations of reading age, motivation and context, it could be damn near perfect.

ENCYCLOPEDIA OF SPACE AND THE UNIVERSE

Price: £39.99. **Out:** now. **Age:** Key Stage 4.
Requires: Performa 475 or better, 8Mb of RAM, System 7 or later, 256-colour monitor, double-speed CD-ROM drive.
Contact: Dorling Kindersley on 0171 753 3488.

CURRICULUM RATING 90%

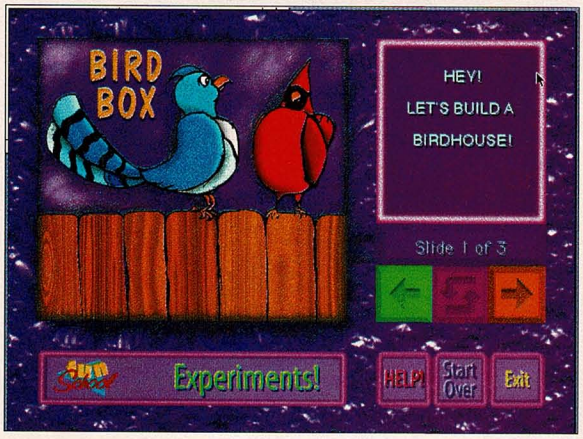
MACFORMAT RATING 82%

DO WHAT?

Each Key Stage lists the skills, concepts and basic facts that pupils are supposed to be familiar with by the time they reach the end of that stage.

Fun School Young Scientist

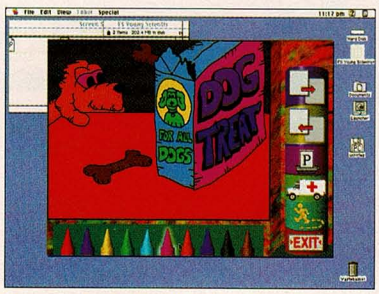
Is it fun, or is it school? Ozzie the otter teaches you a thing or two while you're not looking.



Fun School is packed with hands-on suggestions for things to do. Not all of them need a grown-up's help, either.

The best CD-ROMs are nothing like books at all, and the best designers know that holding the user's attention is just as important as getting the content across. This is especially true for kids, who need regular doses of silliness and entertainment from anyone who wants their undivided attention. It helps if a CD-ROM puts on a friendly face, too.

This CD scores highly on all counts. The first thing you see when it starts up is a cartoon character called Ozzie, who zips around the scenery, pokes his head up over the bottom of the screen and asks 'Can you come out and play?' in a totally cute and irresistible kind of way. From then it's a non-stop combination of animated lunacy and practical problem solving skills masquerading as fun. A deer bounds through a forest, twanging the trees behind it to the accompaniment of harp sounds, parrots fall off their perches and terrible verbal and visual jokes abound. There are games and other distractions too, including a colouring book, a jigsaw puzzle, and a very peculiar location puzzle that's supposed to teach prepositions ('in', 'next to', 'above' and so on) but only succeeded in completely confusing all the adults who attempted it. Whenever you manage to complete anything correctly there's rapturous applause and cries of 'Well done!' – which is exactly as it should be.



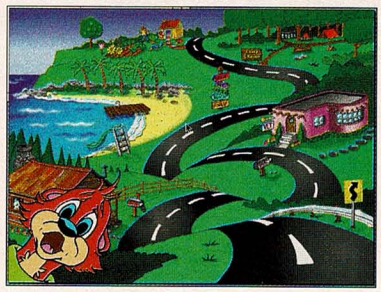
There are plenty of traditional pastimes, too. Here's the Andy Warhol version of a popular colouring book scene.

EXPERIMENT!

Science in the National Curriculum includes the study of physical processes, experiment and investigation, and living things.

It's a non-stop combination of animated lunacy and practical problem solving

The science content isn't particularly rigorous, but it manages to sneak in some important foundation ideas, cleverly disguised as play. How big is a whale, for example? To find out, you're supposed to make a piece of string 100ft long and then go round comparing it to things – your bed, the house, the street outside, your own height. This is a great way to learn about size and about numbers. Not only does the hugeness of the whale register in a very obvious way (100ft? That's *big*...), but all kinds of number-related skills get a work-out, too. And so it is with lots of the other suggestions, many of which are clearly designed to enhance creativity, curiosity and that sense of wonder that was totally missing from most people's formal education. There are ecological messages too, with a strong emphasis placed on recycling and learning to care for the environment.



Now honestly – could you imagine a real otter sneaking up on someone like this?

Most of this package isn't directly tied to National Curriculum topics, but that doesn't mean that what it teaches is useless or distracting. The material is very valuable, and unlike more factual packages it manages to enthuse, inspire and entertain while it educates. What it lacks in conveying dry concepts and facts, it more than makes up in cultivating skills of experimentation.

In short, *Fun School Young Scientist* is a lot of fun, with plenty of practical suggestions for productive activities out of the formal school environment. If your kids are between five and nine, it comes highly recommended.

YOUNG SCIENTIST

Price: £25.99. **Out:** now. **Age:** 5 to 9.
Requires: LCIII, 4Mb of RAM, System 6.05 or better, CD-ROM drive.
Contact: Europress on 01625 859333.

CURRICULUM RATING 65%

MACFORMAT RATING 85%

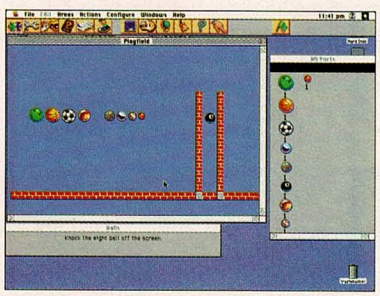
Professor Tim

Professor Tim is Heath Robinson's grandson. Discuss.

Tim is better known as *The Incredible Machine*, a ridiculously entertaining game first released a few years ago. It's a collection of mechanically surreal puzzles made of bowling balls, gears, hamster wheels, balloons, rockets, bits of string and other essential everyday items. Each puzzle relies on some combination of objects making sure another object ends up in a target area.

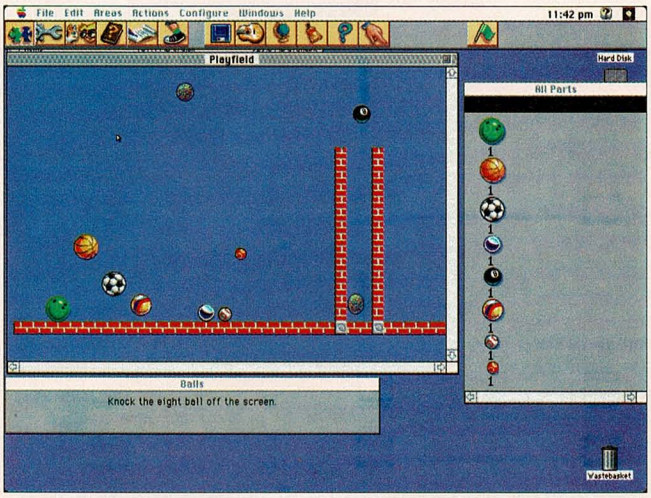
Unfortunately, some essential parts are missing and have to be added from a list of possibilities you're given at the right of the screen. As the game progresses the puzzles get harder and harder, until eventually you'll find yourself spending days obsessively trying to work out what needs to go where. Jobs have been lost, marriages have ended in tears and babies have been abandoned on buses because of *Tim*. It's a damn good game, and an annoyingly distracting one, too.

What makes *Tim* so clever is the way that it models the environmental effects of the real world. Balls bounce, levers lever and gears... er, gear. Gravity and elasticity are carefully calculated so they work exactly as they do in reality, and there's even a good approximation of friction. When a puzzle is run, the objects work together in an entertaining, disturbingly realistic and uncannily fascinating way.



Tim starts with this simple puzzle – add a single ball and bounce the eight-ball out of its chute.

Considering that *Professor Tim* is in Sierra's Edutainment series (aimed at



Hey, it's easy! Use the super-ball. The others are only there to distract you. Look really closely and you'll see the super-ball stretching and squeezing as it bounces.

8 to 15 year olds), you might be forgiven for expecting an explanation of some of the real science behind the game. But no – *Professor Tim* turns out to be just a rebadged version of the original, with a handful of extra objects and some added program options, most of which turn out to be distractingly useless. The walk-through, for example, doesn't contain much of a walk-through. Instead Professor Tim appears and says 'Hey – put a machine together then.' And that's the sum total of the help you get.

Tim himself appears throughout, looking like that crackpot inventor-bloke out of *Back to the Future* on a bad hair day. This is the stuff of mad-scientist typecasting and affords little insight into the way that real scientists work, or the kinds of things they're interested in.

Professor Tim is a game, and nothing more than a game. It loses out because it lacks the stripped-down simplicity of the original (which soon became a classic) and makes no attempt to teach your kids anything useful or even interesting. There is no reinforcement, explanation or extrapolation of anything they might observe while playing it. (It also comes with an extremely healthy supply of some of the most dreadful music you've ever heard on a CD-ROM release.)

There's something very plastic and calculated about calling *Tim* 'educational', and Sierra's 'buy-three-get-one-free' offer does nothing to improve this somewhat tacky image. *Professor Tim* might, perhaps, be used as an excuse to teach the basics of gravity, friction and elasticity. But really it's a game at heart, and in this version not a particularly good one. It's hard to suggest that spending £28 on this product gives you anything in the way of value for money or educational merit.

HOW ARE YOU DOING?

To check a pupil's progress, the National Curriculum specifies a set of attainment targets, from 'Level One', signifying a basic grasp of a subject, to 'Exceptional Performance', which is for unusually gifted pupils.

PROFESSOR TIM

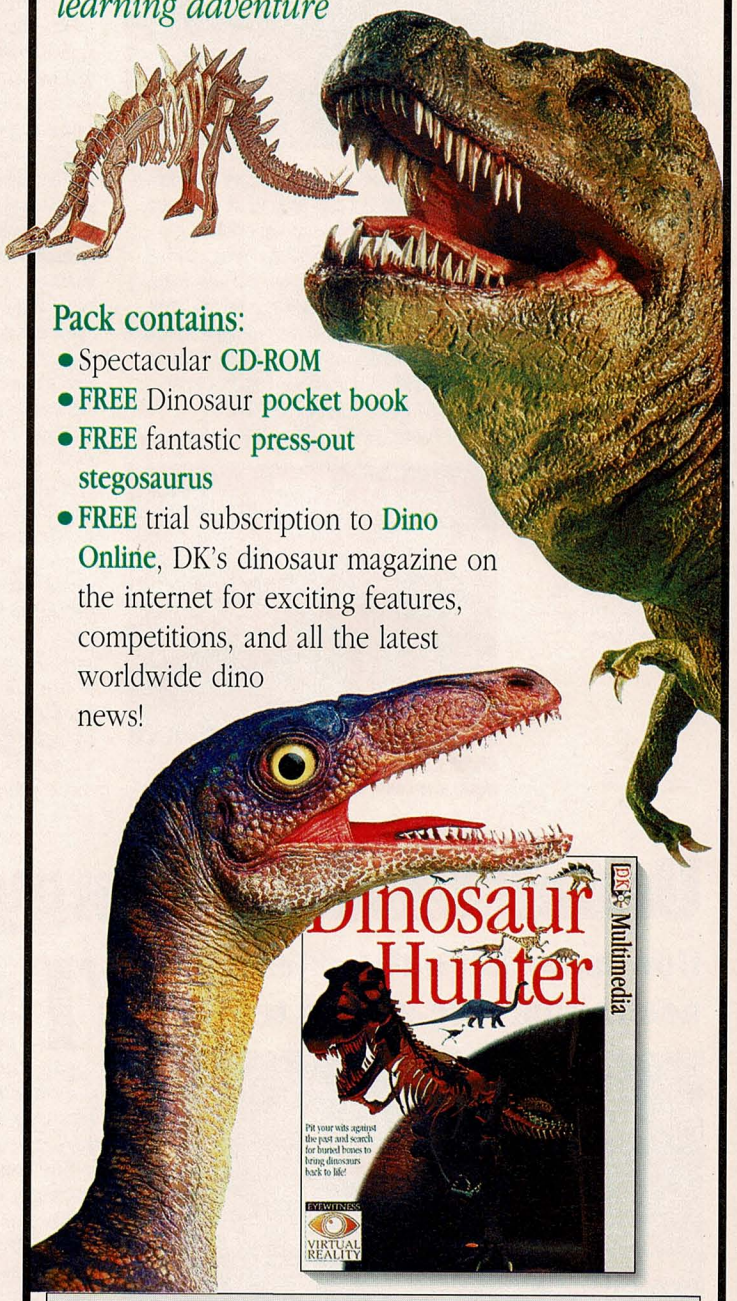
Price: around £28.00. **Out:** now. **Age:** 8 to 15.
Requires: Quadra or better, 8Mb of RAM, System 7.1 or later, 256-colour monitor, double-speed CD-ROM drive.
Contact: Sierra on 01734 303322.

CURRICULUM RATING	35%
MACFORMAT RATING	45%

DK Multimedia

BEWARE! T-REX ON THE LOOSE!

Discover everything there is to know about dinosaurs and even bring them back to life in Dinosaur Hunter - *the ultimate interactive learning adventure*


Dinosaur Hunter
DK Multimedia
Pit your wits against the past and search for buried bones to bring dinosaurs back to life!
EYEWITNESS
VIRTUAL REALITY

Pack contains:
- Spectacular CD-ROM
- FREE Dinosaur pocket book
- FREE fantastic press-out stegosaurus
- FREE trial subscription to Dino Online, DK's dinosaur magazine on the internet for exciting features, competitions, and all the latest worldwide dino news!

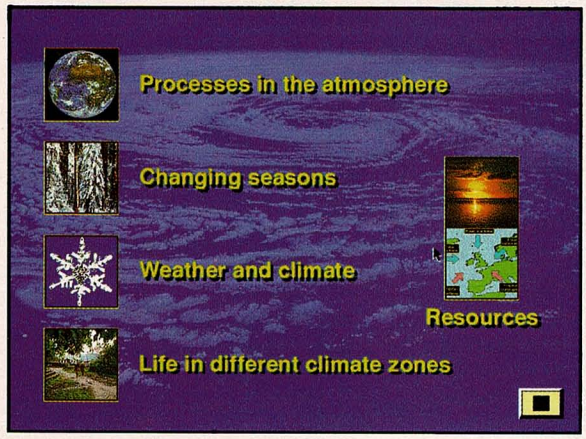
Available now on CD-ROM for Windows and Macintosh RRP: £29.99

Coming soon from DK Multimedia: The Way Things Work 2.0, Chronicle of the 20th Century, The Ultimate Human Body 2.0, Eyewitness Encyclopedia of Science 2.0

For more information on DK Multimedia's award-winning range of CD-ROMs, tel: 0171 753 3488 or visit us on the World Wide Web on http://www.dk.com

The World's Weather

There are more than 2,000 thunderstorms going on around the world at any one time. Strike a light!



One thing this CD-ROM doesn't tell you is how many people need to head for the beaches to make sure it rains on a Bank Holiday.

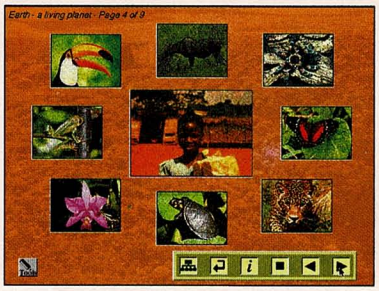
There's an unhealthy tradition among designers of science materials for secondary schools, which seems to be based on a need to bore pupils into into submission. Unfortunately this CD-ROM is a perfect example of that style. Although some of the content is relevant and useful, the presentation is spectacularly dull.

It's really just a slide show of pages, each of which has one or more photographs and a paragraph or two of text. There's a handful of video clips and a handful of animations, but otherwise there isn't much here that wouldn't work just as well in printed form. There's almost no real interactivity – no question and answer sessions, no quizzes, nothing that makes any serious attempt to engage your youngster's interest in any active way.

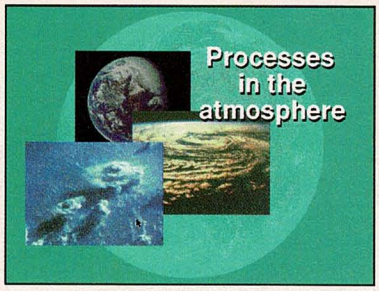
The assumption seems to be that if you include enough facts, the presentation ceases to matter. This is unlikely to be true in practice, and it's certainly not an approach that does the medium of CD-ROM any justice.

There are other problems, too. The most obvious is occasional sleight of hand applied to photographs: for instance, the famous radar image of the surface of Venus is used to illustrate how the Earth started out without any atmosphere. When the same image appears again a couple of screens later, this time as itself, the effect isn't just confusing, it also looks cheap.

More captions, more background, more detail and more interesting facts would have done wonders here. As it stands, there's very little incentive for children to learn how to explore, investigate or think for themselves. A set of 'activity sheets' is available in printable form on the disc, and with luck these could go some way to making up for the limited interactivity of the CD-ROM itself. But that would need a certain amount of expertise from an adult – fine if you're a teacher using this title to supplement classroom lessons, but a tall order if you're a parent seeking to supplement your child's schoolwork at home.



Gratuitous photography abounds. Most of this would look better printed out on paper.



It's pretty, but somehow not very informative.

Presentation aside, this title does cover most of the important facts about weather and weather systems. It includes descriptions of the differences between weather and climate and how these vary around the world, and how and why the seasons vary. There are also explanations of the processes behind cloud formation, rain, snow and hail, and of important fundamental concepts such as relative humidity, the structure of the atmosphere and how lightning works. There's even an introduction to the problems of CFCs, greenhouse gases and the ozone layer.

Overall, though, this is an expensive title that looks as if it's been produced on a shoestring with lots of help from photo libraries and not much thought for the needs of children. For the price it could have been a whole lot better.

THE WORLD'S WEATHER

Price: £58.75. **Out:** now. **Age:** Key Stage 3. **Requires:** any Mac, System 7 or later, 4Mb of RAM, 256-colour monitor, CD-ROM drive. **Contact:** Anglia Multimedia on 01268 755811.

CURRICULUM RATING 71%

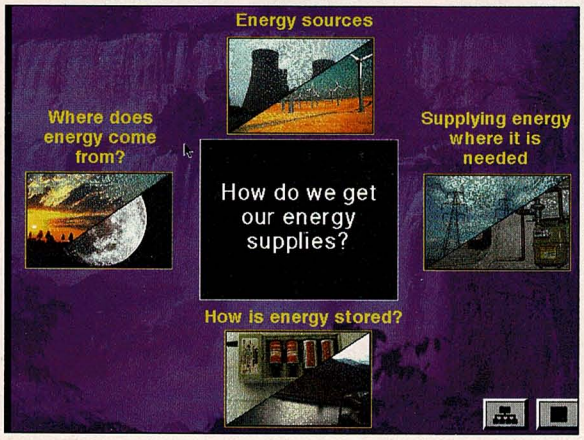
MACFORMAT RATING 55%

BUY A COPY

You can buy a copy of the whole National Curriculum from any large bookstore for £25. Or, if you prefer, you can buy just separate Key Stages.

Understanding Energy

How many kilowatts does a Mac need? This title should tell you.


Energy sources
Where does energy come from?
How do we get our energy supplies?
Supplying energy where it is needed
How is energy stored?

Understanding Energy has a tendency to look more like a business presentation than something designed for schools.

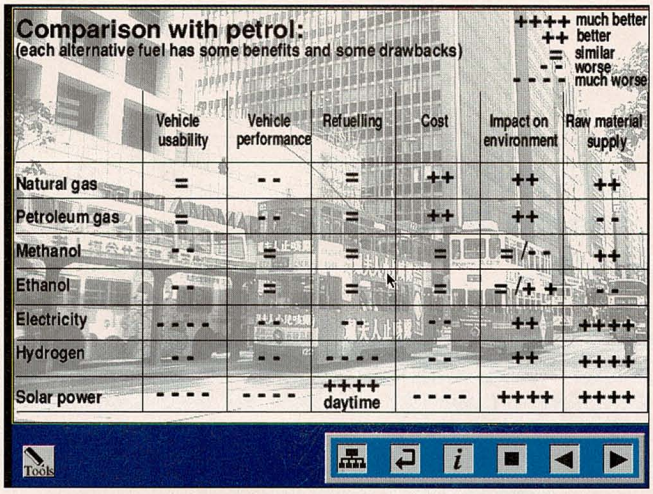
This is another title from the people behind *The World's Weather*, and exactly the same comments and criticisms apply. The style is very similar, with the same linear slide show structure, allowing for very little user input. It's very worthy, but deathly dull.

The contents include a list of different kinds of energy sources, from coal to nuclear to hydro-electric to solar power. There's a very simple introduction to the idea of energy, which doesn't do nearly enough to bridge the gap between the abstract fundamentals of energy and power and what they mean in practical terms in the real world – the handful of everyday examples aren't enough to make this as clear as it could be.

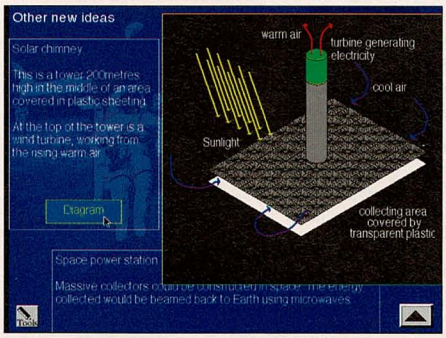
Joules, watts and other energy units get a mention, and there's even a trip to a virtual version of Milton Keynes to investigate energy conservation options and the future of energy in an urban setting. Stock photos are used to show different kinds of energy consumption around the world, and there's a look at how food is digested and how the body maintains itself.

As in *The World's Weather*, the subject headings are slightly arbitrary. There isn't a search engine to encourage a less regimented approach to the subject matter, and again there are no suggestions for hands-on work within the CD-ROM itself – although activity sheets are available.

Perhaps the most regrettable thing about these titles is their failure to capture the wonder and sense of adventure that real science offers. The


Comparison with petrol:
(each alternative fuel has some benefits and some drawbacks)
++++ much better
++ better
= similar
- worse
- - - - much worse
Vehicle usability
Vehicle performance
Refuelling
Cost
Impact on environment
Raw material supply
Natural gas = -- = ++ ++ ++
Petroleum gas = -- = ++ ++ --
Methanol -- = = = = /+ -- ++
Ethanol -- = = = = /+ + --
Electricity - - - - -- -- ++ ++++
Hydrogen -- -- - - - - -- ++ ++++
Solar power - - - - - - - - ++++ daytime - - - - ++++ ++++
Tools

There's lots of dry information, but not much to spark interest or enthusiasm here.


Other new ideas
Solar chimney
This is a tower 200metres high in the middle of an area covered in plastic sheeting.
At the top of the tower is a wind turbine, working from the rising warm air.
Diagram
warm air
turbine generating electricity
cool air
Sunlight
collecting area covered by transparent plastic
Space power station
Massive collectors would be constructed in space. The energy collected would be beamed back to Earth using microwaves.
Tools

Some of the ideas are novel and interesting. For example, here's how to build a nuclear power station with nothing more than a cigarette and some sticky-backed plastic.

underlying message is that science is about facts and numbers, and not about a healthy curiosity about how the world works. It's the difference between showing and telling – you can inspire pupils to find things out for themselves and design the means to do so with creativity and enjoyment, or you can turn them into passive consumers of predigested information. This title falls firmly in the second camp, and that's something that ultimately does its intended audience no favours.

There's even a trip to a virtual version of Milton Keynes to investigate energy conservation

The need for a more open-ended approach to science is emphasised in the National Curriculum, and pupils are now required to be able to design experiments and analyse and understand the results. The limitations of rote learning for science are recognised in the NC. Unfortunately, the developers of this CD-ROM don't seem to have realised this yet, and that makes it hard to accept their claim that they're developing strong, solid aids for work towards the National Curriculum attainment levels. This is very like a textbook on CD, and one dating from before the NC at that.

UNDERSTANDING ENERGY

Price: £58.75. **Out:** now. **Age:** Key Stage 3.
Requires: any colour Mac, 4Mb of RAM, System 7 or later, 256-colour display, CD-ROM drive.
Contact: Anglia Multimedia on 01268 755811.

CURRICULUM RATING 70%

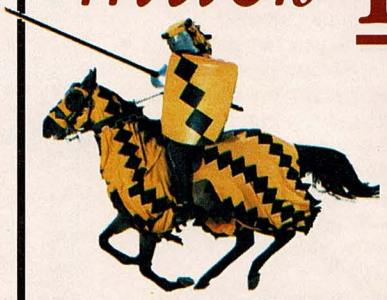
MACFORMAT RATING 56%

FREEDOM OF INFORMATION

HMSO (Her Majesty's Stationery Office – which makes it sound like just a store-room for writing paper and envelopes) has converted the National Curriculum into electronic text, but it is not available on the Internet. A shame really – parents might be able to consult it that way...

DK Multimedia

HISTORY has never been *so much* FUN!



Experience all the drama and danger of 14th-century life in **Castle Explorer** - *the ultimate medieval learning adventure*

Includes **FREE** press-out castle and jousting scene to build yourself!

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Encarta 96

Did the world's best multimedia encyclopaedia just get even better, or did it just get slower? Rod Lawton flips through the pages and gets himself an education...

YANKEE DOODLE DANDY (NOT!)

PC users can now buy a 'world' version of *Encarta* which has content geared more towards a UK/European audience. Annoyingly, there are currently no plans to make this available for the Mac.

YOU WANT MORE?

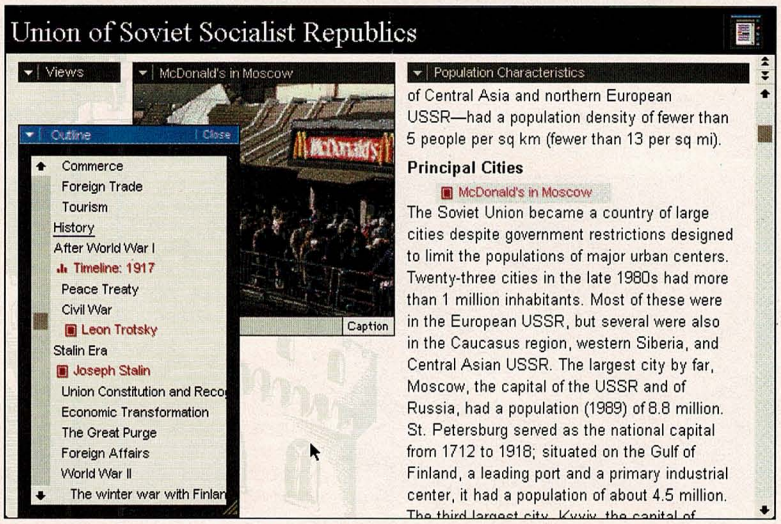
If you're a facts buff, check out Microsoft's other, more specialised encyclopaedias covering music and cinema. *Cinemania 96* scored 89% in MACFORMAT 36 and *Music Central 96* rated 95% and a Classic Award in MACFORMAT 40. If you missed these issues, see page 128.

Encyclopaedias and CD-ROM were made for each other. The ability to combine audio, movies, text, pictures, animation and speech into an interactive whole has produced reference works far more accessible and useful than the weighty volumes of old. And *Encarta* is widely recognised as being the best general-purpose multimedia encyclopaedia you can get. So, is the all-new '96 version, now available for the Mac, better than ever?

First, consider how *Encarta* works. Clearly 650Mb of interlinked, mixed media needs some organised structure so that you can figure out where things are and how to get to the information you require. *Encarta 96* is a collection of over 26,000 **'articles'** bound together by **hyperlinks** and an **interface** that enables you to explore the information in a variety of ways. Let's look at each of these elements.

Each **article** is a piece of explanatory text, usually accompanied by one or more illustrations, sounds, photographs, or QuickTime movies. As you scroll through the text, this illustrative material appears automatically alongside. The text contains highlighted words and phrases – **hyperlinks**. Clicking on these will take you to another article that gives you more information on that subject.

The **interface** that binds all this together provides you with several ways of locating information. You can use a text-based search engine to **Find** specific words or phrases, you can explore the world's history in the **Timeline** view, you can carry out your own interactive investigations, you can study videos and animations in the **Media Gallery** and you can even sit back for one of many 'themed' **Guided Tours.**


Union of Soviet Socialist Republics
Views
McDonald's in Moscow
Outline
Close
Commerce
Foreign Trade
Tourism
History
After World War I
Timeline: 1917
Peace Treaty
Civil War
Leon Trotsky
Stalin Era
Joseph Stalin
Union Constitution and Reco
Economic Transformation
The Great Purge
Foreign Affairs
World War II
The winter war with Finlan
Caption
Population Characteristics
of Central Asia and northern European USSR—had a population density of fewer than 5 people per sq km (fewer than 13 per sq mi).
Principal Cities
McDonald's in Moscow
The Soviet Union became a country of large cities despite government restrictions designed to limit the populations of major urban centers. Twenty-three cities in the late 1980s had more than 1 million inhabitants. Most of these were in the European USSR, but several were also in the Caucasus region, western Siberia, and Central Asian USSR. The largest city by far, Moscow, the capital of the USSR and of Russia, had a population (1989) of 8.8 million. St. Petersburg served as the national capital from 1712 to 1918; situated on the Gulf of Finland, a leading port and a primary industrial center, it had a population of about 4.5 million.

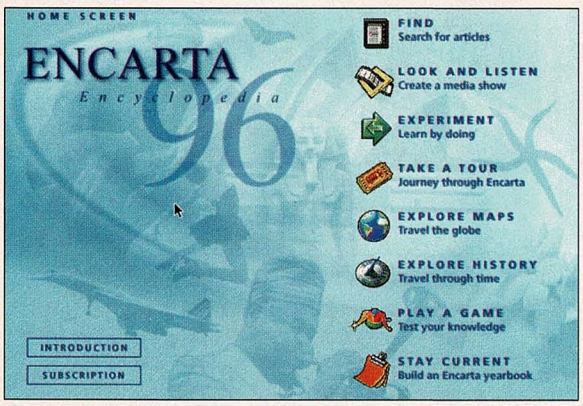
'Articles' are the building blocks of *Encarta 96*. They are a mixture of text, movies and illustrations, with hypertext hotlinks that take you straight to other related articles when you click on the highlighted words.

The scope and quality of the information are beyond reproach, especially for a general title like this

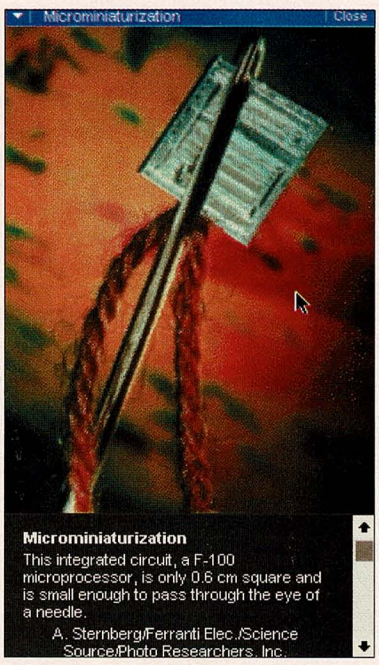
But is this yet another Americanised view of the world, in which the UK is mentioned only in passing? Not at all. *Encarta 96* does go into both American history and modern-day American facts in some depth, but there's a good deal of UK content too.

That's not the end of the story, either. Even the most brilliantly-designed interactive encyclopaedia is an inert, unchanging reference source that's bound to be left behind by the onward march of world events – unless it's *Encarta*. Microsoft is posting monthly updates on the World Wide Web for subscribers (though whether this will be continued for the next version hasn't been decided). These take only a few minutes to download, but add updates and new articles to your hard drive so that your copy of *Encarta* is always bang up to date.

So the content is not problem. It's a pity the same can't be said about the hardware requirements. The space the accompanying documentation devotes to assigning memory and optimising speed gives you a hint that all isn't what it might be. To be fair, it is possible to run *Encarta 96* in 4Mb of RAM – the minimum requirement. But resorting to Virtual Memory tends to cause glitches in QuickTime movies and audio, and we encountered some big speed problems, even on a Power-Mac with 16Mb of RAM. For example, in the **Tour** section you can choose



New for *Encarta 96* is the 'home' page, which lists the various ways in which you can navigate your way around the program.


Microminiaturization
Close
Microminiaturization
This integrated circuit, a F-100 microprocessor, is only 0.6 cm square and is small enough to pass through the eye of a needle.
A. Sternberg/Ferranti Elec./Science Source/Photo Researchers, Inc.

You can expand illustrations, movies and animations in a separate window, enabling you to undertake a more detailed inspection.

You can explore the world via either its geography or its history, using the **Atlas** or **Timeline** options respectively.

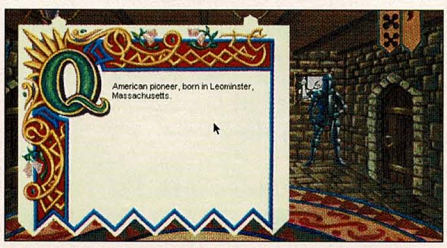
Interested in how the Soviet Union annexed Eastern Europe after World War Two? This animated map shows you, step by step.

one of several themed tours. If you run the mouse pointer over the tour name, it highlights and a paragraph of introductory text appears alongside. Eventually. In practice, you can wait several seconds for the position of your mouse cursor to register, during which time you've circumnavigated the screen 11 times wondering if your Mac has crashed. And in the tour itself, should you really have to wait nine seconds between the text updating and the accompanying graphics finally putting in an appearance? *Encarta* single-handedly transforms the Mac's point-and-click interface into 'point-and-wait'.

For all that, *Encarta 96* is an excellent reference volume. The scope and quality of the information are beyond reproach, especially for a general title like this, and the controls and various ways of navigating through the information are very well thought-out.

There were some big speed problems, even on a PowerMac with 16Mb of RAM

But the program is not fast and, worse still, you come away with the feeling that no-one at Microsoft has either noticed or bothered to smooth over what are some glaring gaps. *Encarta 96* is a market-leading product and its content is still unrivalled, but it is, unfortunately, marred what appears to be some careless presentation. **MF**



The **Mindmaze** is an interactive quiz game which could last you the rest of your life...

SUBSCRIBE

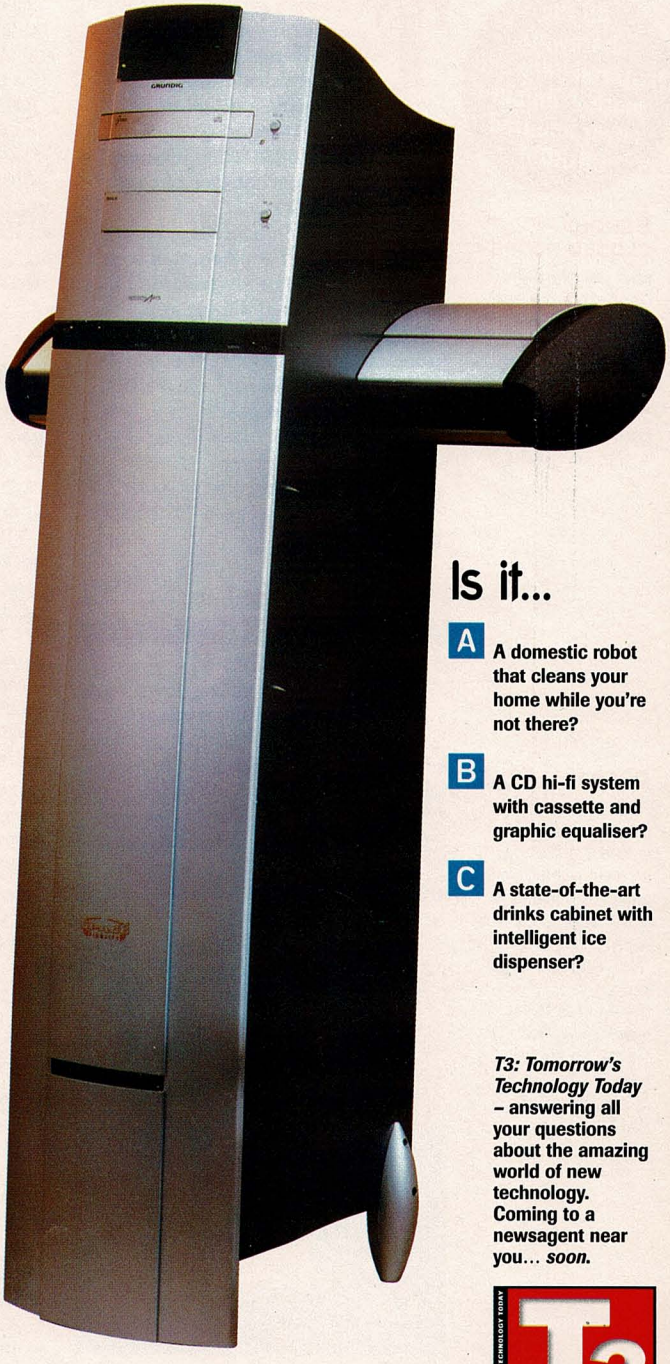
If you purchase *Encarta 96*, you can currently subscribe to a series of information updates, available via the Internet. Microsoft is, however, unsure how long it will maintain this service. For more details, contact Microsoft on 01345 002000.

ENCARTA 96

Price: £49.99. **Out:** now.
Requires: LCII or better, 4Mb of free RAM (more recommended), System 7 or later, 256-colour monitor, CD-ROM drive, 7Mb of hard disk space.
Contact: Microsoft on 01345 002000.

MACFORMAT RATING 83%

What the *hell* is this?



Is it...

A A domestic robot that cleans your home while you're not there?

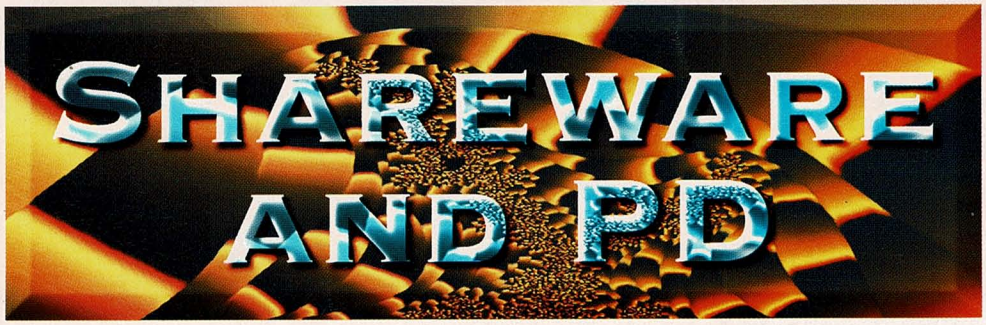
B A CD hi-fi system with cassette and graphic equaliser?

C A state-of-the-art drinks cabinet with intelligent ice dispenser?

T3: Tomorrow's Technology Today – answering all your questions about the amazing world of new technology. Coming to a newsagent near you... ***soon.***

A new magazine from the makers of MACFORMAT

T3 TOMORROW'S TECHNOLOGY TODAY



What else offers you the potential to change your life and yet costs so little? Rod Lawton embarks on another pilgrimage into the land of shareware...

All the shareware featured here and more is on our covermounted CD-ROM

BEHIND CLOSED DOORS

Have you ever wondered why programs end up on the shareware market? This issue's margin notes include some of the conversations that take place behind closed doors... we suspect.

DOES IT WORK?

'Well, Bud, does your System resource patching module still wipe out resource forks on PCI PowerMacs?'
'Don't know, Bill, I haven't got a PCI Mac.'
'Well, Bud, how're you gonna find out?'
'Put it out as shareware, Bill. Someone'll tell me. Mebbe even suggest a fix.'
'Now that's smart, Bud.'

This issue we can promise you some real variety. Among other things, we have a metaphysical novel, interactive beekeeping, a program for searching disks that aren't even mounted and an ISO9660 filename compatibility checker (we like to save the best till last).

Shareware isn't just cheap, second-rate software, not good enough to sell commercially. Some shareware programs are blindingly simple and efficient solutions to age-old Mac problems. Others are extremely powerful programs, sold at a fraction of the price of rival commercial products. The rest are... well... yes, all right, cheap, second-rate software, not good enough to sell commercially. So how do you find out which is which? Just keep reading.

A Problem of Language

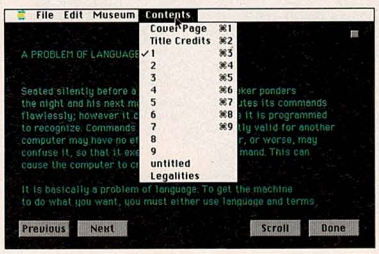
BOOK

Freeware

There's nothing like sitting down with a good book and a mug of cocoa in front of a glowing monitor. Instead of turning the pages you click the mouse button. Instead of moving your eyes down to the bottom of the page you let the words scroll up the screen. Instead of finishing that angry letter to the gas board, you're reading a strange, metaphysical story about towers, ancient languages and decoding encrypted hieroglyphics.

If you're interested in books with multiple parallel storylines where nothing really happens but everything appears to be related... then you'll love this one. However, if you like plain-talking stories with a beginning, a middle and an end, you may consider this to be cheesy metaphysical tripe.

Whatever the merits of the story, W Luther Jett's 'chapbook' is an interesting electronic book. Created with *Museum 1.1*, a shareware authoring application, *A Problem of Language* runs in full colour at a good speed, can include text and graphics and only uses 1,000K of RAM.

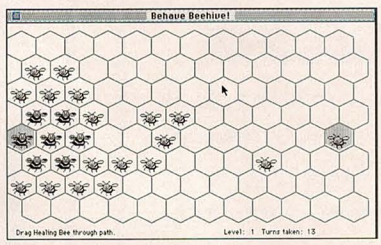


A Problem of Language: an interactive storybook with a moral. Which is something to do with the Unknowable. Or something.

Beehave Beehive!

ARTIFICIAL LIFE GAME

Freeware



Beehave Beehive!: if you ever need to counsel troubled bees, this program will give you all the training you require.

If you think it's tough being a human, just thank your lucky stars you're not a bee. Apart from having to wear a hairy overcoat and making a noise like a flatulent Flymo, you have to endure the indignity of repeatedly braining yourself against living room windows and having a dubious preoccupation with flowers.

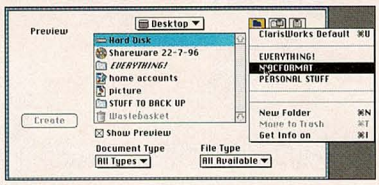
So, the last thing you need when you get back to the nest is a social uprising caused by unruly bees with a bad attitude. Fortunately, this interesting and educational game could help you develop the skills to rapidly assemble a swarm of bee counsellors to individually talk to each irascible bee and get it to see the error of its ways. Each bee thus converted will help you persuade the rest that their antisocial behaviour is just soooo self-destructive for the hive.

And it's an infuriatingly fascinating game. You forget that it's in mono, has no animation and moves in migraine-inducing jumps. Instead, you realise it has a rather absorbing blend of board-game strategy skills and some interesting life-imitating algorithms. Who knows? Given enough practice, there's always the chance you could become a professional bee counsellor.

Default Folder 2.6.1

SYSTEM EXTENSION

Shareware, registration fee $25



Default Folder 2.6.1: a hard drive is a big place. This software enables you to set up some handy shortcuts for safer saving.

How many folders and files do you have on your hard disk? And how much of your time would you estimate you spend navigating through your hard disk in the **Open** and **Save** dialogues? And do you find that you save things in strange places because you haven't checked the current folder in the **Save** dialogue box?

Default Folder aims to put all this and more right. It's an **Open/Save** dialogue box modifier, which adds three pop-up menus for accessing your favourite files.

First, it enables you to set up a default folder for specific applications, and this is stored in a 'linked set'. You can store a number of applications, each with nominated default folders, in the same linked set, and you can have a number of linked sets.

So far so good. For each application, though, you can also nominate folders to be added permanently to the folder menu in the **Open/Save** dialogue box. You want more? With the **Open/Save** dialogue open, you can click on a Finder window in the background to bring its contents into the dialogue. Now that's smart.

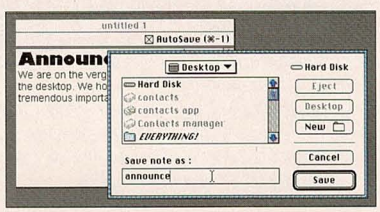
In fact *Default Folder* is smart altogether. However, at $25 it's no bargain, and although it looks professionally produced and pretty bulletproof, it's up against some pretty good commercial utilities like *Quick 'n' Easy* with a similar gadget-to-cash ratio.

FinderNote 1.2.1

UTILITY

Freeware

How would you like to be able to save text files to your Desktop (or any-



FinderNote 1.2.1: ah ha! An application that can save text clippings to your Desktop. Rather like... er, most other applications, actually.

where in the Finder) and open them instantly at any time without launching any application or using any RAM? Sounds too good to be true?

Well, if you own any recent Mac with Apple's *Clipping Extension* installed, you can do just that, with the help of Jae Ho Chang's *FinderNote* text editor. You can't edit the text in the window that appears when you double-click, and unless you open it with a text editing application you can only view it.

Hang on, though. What a swizz – you can do this anyway! A close look at the icons reveals that *FinderNote* generates clippings, just like those you get when you drag selected text or graphics out of a document and on to the Desktop. The only difference with this program is that it enables you to name them first.

Well, it may prove useful, but if you've got *ClarisWorks* or indeed any other application that supports clippings, you can make your own and then name them later by just typing over the existing name in the Finder.

If you thought clippings were nasty little things you find tangled up in the bathroom carpet, think again. They're not just handy for transporting material from one document to another – they can make rather neat little standalone documents too.

FindText 1.3.2

UTILITY

Shareware, registration fee $20

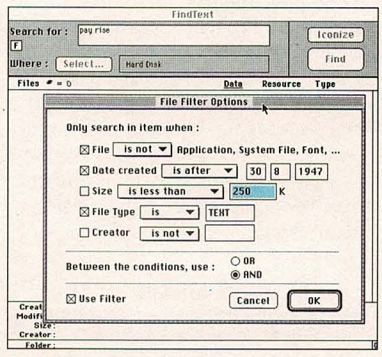
Imagine the scenario. You're convinced your boss sent you an e-mail about a promised pay rise some time over the last six months, and now he's saying he did nothing of the sort. You know you filed the e-mail, but you don't know what it's called and you already have about 500 filed e-mails. What do you do?

You run *FindText*, choosing the folder where you store your e-mails, then just carry on working as normal and wait for an alert box to tell you that *FindText* has finished its search. What you'll then get is a list of filenames – to open the files with their creator applications, simply double-click on them.

There are lots of ways to narrow down the search – just as well, because searching all the files on your hard drive could take a long time. You can search text files only, files created after a certain date, files below a certain size... the more precisely you define your search, the quicker it is.

As well as running unobtrusively in the background, *FindText* can also be 'iconised' with a single mouse click so that you don't have to put up with a dirty great main window cluttering up your Desktop all the time.

FindText does what it sets out to do very well, but the $20 shareware fee seems a tiny bit on the steep side for such a specialised application.

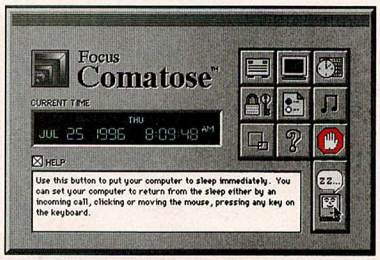


FindText 1.3.2: now you too can search all the files on your hard drive for those elusive text strings.

Focus Comatose v4.1

UTILITY

Shareware, registration fee $20


Focus
Comatose
CURRENT TIME
THU
JUL 25 1996 8:09:48 AM
HELP
Use this button to put your computer to sleep immediately. You can set your computer to return from the sleep either by an incoming call, clicking or moving the mouse, pressing any key on the keyboard.
Z2...

Focus Comatose v4.1: send your Mac to sleep, disk drives and all, and wake it up again with a single mouse click.

Screen savers are all very well. They prevent your monitor getting burned-in (not that we've ever heard of anyone who has suffered that fate) by replacing the working image on your screen with a selection of patterns, pictures or animations. Screen savers also make your Mac's screen a bit more interesting to view while you take a break. But even though you may be cutting down on screen wear and tear, the hard disk is still spinning away and the monitor is still consuming power while you're not using your Mac.

Focus Comatose is the answer. It blanks your screen, even powering it down if it's one of the energy-saving models, and it also spins down all connected drives. Your Mac then sits quietly, waiting for a mouse click or a key press before powering-up again. This process is far quicker than doing a normal **Restart.**

Neat idea. What makes it even neater is the fact that you don't have to install any Extensions or Control Panels. *Comatose* is a simple application, and it only takes 145K of RAM. You can also 'iconise' it with a single mouse click to confine it to the corner of your screen.

You can either send your Mac to sleep manually or get it to wind down automatically after a set delay, just like a screen saver. It will also automatically wake up again if someone sends you a fax, a feature which makes it feasible to leave your Mac running 24 hours a day, ready for incoming faxes.

Comatose is a nicely assembled piece of software, working well. It makes few serious demands on RAM or processor time and doesn't cost much, either. Other bonuses include a digital clock and a password protection system. Definitely a piece of shareware to take a look at.

Gaspod v1.0

SYSTEM EXTENSION

Shareware, registration fee $5

In MACFORMAT 41 I ranted and raved over *Finder Windows*. It was a System Extension that adds a Window menu to your Finder, so that you can quickly get to windows that are buried under a heap of others.

Well, *Gaspod* goes one better. As well as giving you a window menu in the Finder (a compact icon rather than the word 'Window') it also works within applications too.

Many applications like *ClarisWorks* have a **View** menu or equivalent, for switching between open documents. Others don't, even though they're practically screaming out for them.

However, things don't always work out according to plan. As the author warns, *Gaspod* can get a mite confused

WHO NEEDS IT?

'Say, Bud, that window-wobbling routine sure is cool.'
'Thanks, Bill.'
'Kinda makes you feel sick trying to read those filenames, don't it?'
'Sure does.'
'You think, uh, you think anyone's gonna need that kind of, uh, window-wobbling routine, Bud?'
'Only one way to find out, Bill.'
'Shareware market, huh? That's smart, Bud.'

WHY?

'Why didn't that window open when you double-clicked on it, Bud?'
'Wasn't supposed to, Bill.'
'Well, uh, how come, Bud?'
'I'm alwuz openin' that one by mistake, Bill. Danged infuriatin'.'
'So how'd'ya fix it, Bud?'
'System file patch, Bill. Assembles a database of folders you regoolarly shut within one second of opening them.'
'Ain't you gonna document it, Bud?'
'No point before I've got some feedback from the beta, Bill.'

Gaspod v1.0: Gaspod gives you a menu for selecting any currently open window. You guessed that from the name, huh?

CONFUSED ABOUT SHAREWARE?

■ Shareware is a form of 'try before you buy' software selling and it's a great idea, so long as you're honest. When you get some shareware, the documentation file accompanying it will tell you how much it costs – typically somewhere between US$5 and $40 – and where to send your money. If you like the software and decide to keep it, you're morally obliged to cough up. Not only do you get the satisfaction of boasting how honest you are to friends, but the author will often give you something for registering, like a printed manual or updates when they're released. The most common problem is sending money abroad but as many shareware authors now accept credit cards, it's getting easier.

■ Freeware means that you don't have to pay for it at all. There are many variations like postcardware, where you have to send a pretty postcard to the author.

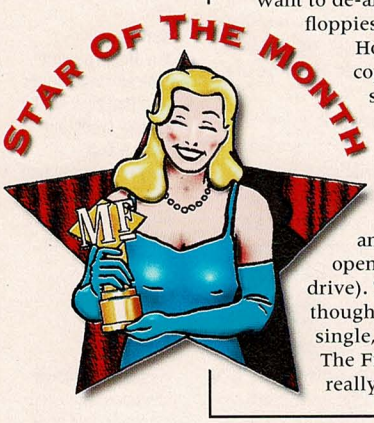
Freeware is not strictly the same as Public Domain (PD) because although you don't pay for freeware, the author keeps copyright and you must follow his conditions to use the program. This often means keeping all the files together and neither using nor selling them for profit.

Continued on next page

Floppy Catalog 3.0.1

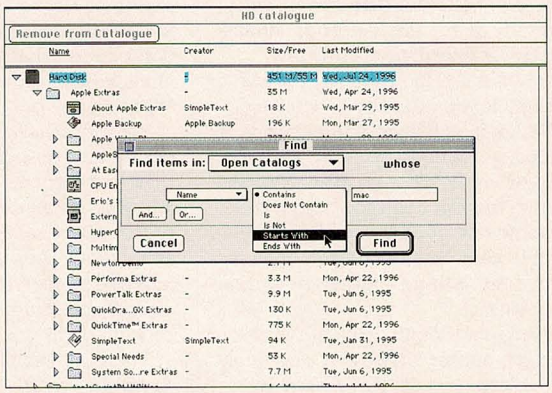
UTILITY

Freeware



If you store files on removable media (floppies, flopticals, SyQuests, removable hard drives and so on) you'll know what a pain in the ar... er, neck, it is to have to mount each one just to see what's on it. The usual problem is that you want to de-archive an old file and it's on one of 173 floppies in that dusty box under your desk.

However, with a bit of preparation and a copy of *Floppy Catalog*, you could find files in seconds, wherever they are. How? *Floppy Catalog* checks all the folders and sub-folders on each selected disk and compiles a catalogue which looks and behaves remarkably like the Finder. You can click on the little arrows to open or close folders and you can double-click on file names to open them (after you've put the right disk in the drive). The biggest advantage for archive fans, though, is that you can combine lots of disks into a single, big archive and search the lot in one go. The Find function is sophisticated enough to really pin down the search criteria.



Floppy Catalog 3.0.1: create a searchable catalogue of the contents of all your disks, all stored in a reasonably compact database. Quite superb.

As if that isn't enough, *Floppy Catalog* will display folder sizes (no more waiting for the Finder to chew through its long-winded calculations), creator types and modification dates. You don't have to install any conflict-prone Extensions or Control Panels, and the program is entirely free. Someone pinch me, I must be dreaming.

HYPER PERFORMANCE

'Dang, I never knew *HyperCard* could animate 24-bit JPEGs, Bud.'

'Ain't supposed to, Bill, but I done did it all the same.'

'Two frames a second... ain't that a bit, uh, slow, Bud?'

'Hell, Bill, it's three or four frames, sometimes. What ya being so picky for? There's plenty of folks out there who're gonna be amazed at this.'

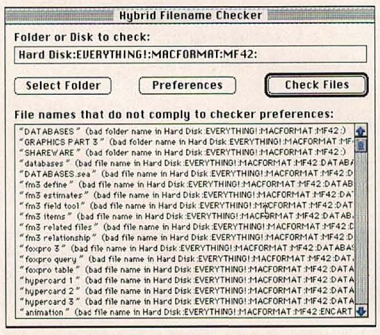
when working with programs which already have a window managing menu. For example, in *QuarkXPress*, as well as listing all the open documents, *Gaspod* lists floating palettes too. This is probably because of the way *XPress* handles its own **View** options and is rather handy, actually, because *XPress* has so many floating palettes you can spend more time shuffling them around than the words and pictures you're laying out. Still, we do suspect *Gaspod* is doing some slightly strange things to your System that it really shouldn't be doing.

As the author suggests, *Gaspod's* best home is probably the Finder. It can't stack and tile windows like *Finder Windows*, but it does have a neat little icon. Small, cheeky and highly affordable.

Hybrid Filename Checker v1.1

DEVELOPMENT TOOL

Freeware



Hybrid Filename Checker v1.1: before you celebrate the success of your latest program development, check the filenames are compatible.

Picture the situation. You're a professional applications developer, sipping a vodka martini on a beach in Bermuda after finishing a little job for a client in London. Your mobile phone rings. You put down the wad of £50 notes you've been riffling through and answer it. Your deeply-tanned face turns a sort of muddy grey. The corners of your mouth drop six inches. That niggling old bladder complaint seems to be coming back.

It seems your epic multi-platform multimedia CD-ROM product won't run on a PC. Any PC. None of the external files are working. You put the phone down with Bill Gates's angry little voice still ringing in your ears. What went wrong?

Well, it's obvious. Although the Mac can handle long filenames that include spaces, other platforms can't. To be really, really safe you need to conform to the lowest-common-denominator file naming system, ISO9660. It's not enough to simply keep an eye on filenames to make sure they're eight characters or less with a three-character suffix. Bad filenames can easily slip through and, worse than that, in travelling from one platform to another, certain harmless characters can be replaced by entirely illegal ones.

You should have used *Hybrid Filename Checker* to weed out all illegal filenames up to eight folders deep, shouldn't you? Well, it's too late, but now you know. You've just got time to wipe that vodka martini off your Hawaiian shirt before you hand back the keys to the Ferrari.

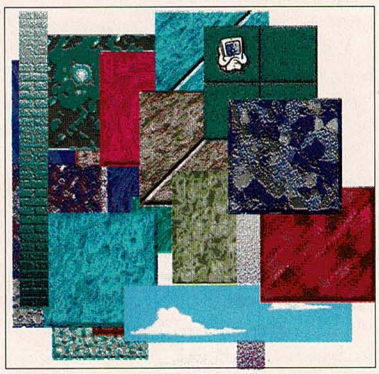
MacSense Desktop Tiles Volume #1

UTILITY

Freeware

I've given up with my **Desktop Patterns** – they're too boring. I've given up with *DeskPicture* (MACFORMAT 40) – it uses too much RAM. Now I've got about 60 new Desktop tiles from the *MacSense* electronic magazine.

You need System 7.5 to use them, and you need to set your **Desktop Patterns** Control Panel's memory partition to 600K in the **Get Info** box



MacSense Desktop Tiles Volume #1: a collection of tasty little somethings for your Desktop.

under **File**, but once you've done that, all you have to do is open the Control Panel and drag the supplied picture clippings onto the *Desktop Pattern* window. These tiles all fit together on your screen to produce a pleasing grid effect or a seamless whole. There are rushing clouds, friendly Macs, Romanesque marble slabs... you could spend hours finding your favourite. Well I did, anyway.

Manual Maker v2.0

APPLICATION

Freeware

(Shareware fee $20 for commercial users)

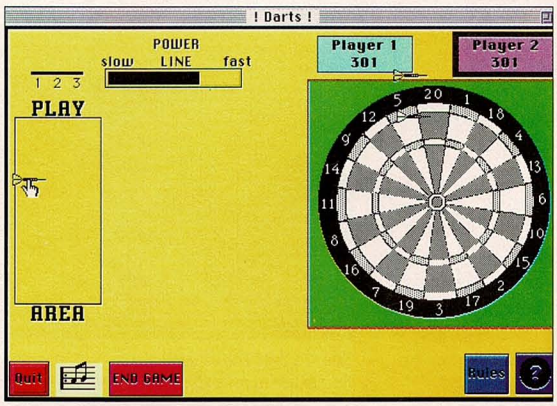
Do you ever need to distribute standalone documentation files with homemade applications? Do you want to write an electronic book that doesn't require people to have the right application before they can open it? Do you simply want to create self-launching interactive text files, broken down into chapters and sections?

Well, whether you do or not, *Manual Maker* is the perfect tool to do it with. You write your documentation or story as a series of *SimpleText* files. Then you simply run *Manual Maker* and it bundles these files together into chapters in a single standalone docu-

! Darts !

GAME

Freeware (we think)



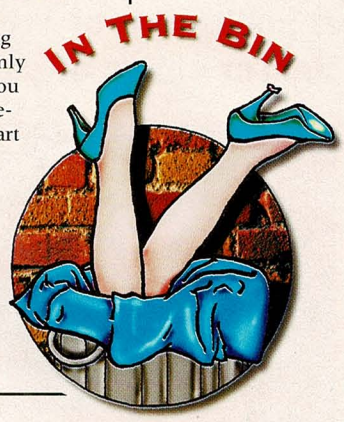
! Darts !: The worst implementation in the world of the worst game in the world. (Now let's wait for the letters of protest to flood in...)

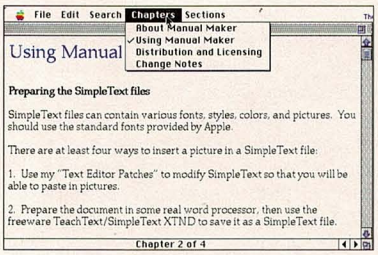
Darts is a game you play in a pub with a pint in one hand, a meat pie in the other hand and your darts in another hand. No, wait a minute, the pint is on the bar, you've got your fags in the other... No, hang on.

At any rate, you don't play it hunched in front of your monitor with your eyes swivelling to and fro like hyperactive stress balls and your finger twitching over a mouse button. Whereas the real-life game involves a blend of hand-eye co-ordination, cool-headedness and a voluminous waistband, *! Darts !* involves nothing but luck. You watch a power bar wibble randomly between Slow and Fast at ultra high speed. If you press the mouse button at the wrong time (something which is, sadly, almost inevitable) your dart will miss the dartboard by a mile.

Our first instinct was to give the author the benefit of the doubt, and assume we simply hadn't developed the necessary skill. Then we changed our minds.

Incidentally, *! Darts !* is written in *HyperCard* and is a testament to the fact that almost anyone can use it as a straightforward programming language. And that it should be banned.




File Edit Search Chapters Sections
About Manual Maker
Using Manual Maker
Distribution and Licensing
Change Notes
Using Manual
Preparing the SimpleText files
SimpleText files can contain various fonts, styles, colors, and pictures. You should use the standard fonts provided by Apple.
There are at least four ways to insert a picture in a SimpleText file:
1. Use my "Text Editor Patches" to modify SimpleText so that you will be able to paste in pictures.
2. Prepare the document in some real word processor, then use the freeware TeachText/SimpleText XTND to save it as a SimpleText file.
Chapter 2 of 4

Manual Maker v2.0: perfect for producing standalone documentation or storybooks. No good for soufflés.

ment or application. Your end-user can access each chapter via a pull-down menu, and by inserting a tab character after a heading within a chapter, you can define sections too.

Using *Manual Maker* is a bit weird. There's no actual user interface. You set up the order of your chapters by the way you arrange the icons in the Finder window. And then, once you've placed a copy of a blank manual in the same folder, you run *Manual Maker...* it twiddles away for a couple of seconds... and then – hey presto – your manual is finished.

The *Manual Maker* application itself is tiny, and the manuals it produces run in just 200K of RAM. What an excellent little application.

PrefKiller 1.0

UTILITY

Shareware, registration fee $7
(Less in developing countries)

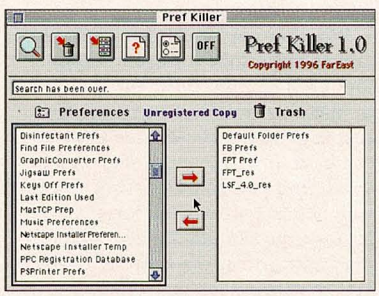
Take a look in the disaster area that is your **Preferences** folder. Frightening, isn't it? Apart from the dozens of files created by applications you've long since dumped, there are dozens more with incomprehensible names that could be vital to the proper working of your Mac. Equally, of course, they could just be ancient junk, cluttering up your hard drive and slowing you down. So what do you do?

The idea is that you should run *PrefKiller* to weed them out. It works by first scanning all your drives for applications and Control Panels to compile a list of creator types. Then it checks the files in your **Preferences** folder to see which are 'orphans' – that is, files whose creator applications have long since gone to that great Wastebasket in the sky.

The theory is fine, but there are a couple of things to look out for. First, some essential Mac OS Prefs files don't have a recognised creator, but you can set *PrefKiller* to weed these out, so that you don't accidentally delete them. Secondly, some creator applications may be on volumes that are not currently mounted. There's no way to get round this – you just have to watch out for it happening.

In use, *PrefKiller* worked reasonably well, although I only felt safe throwing away half of the Preferences files it listed. You can check the file info of any dubious Preferences, but that doesn't help you much with the complex identification process.

PrefKiller does automate the tiresome chore of cleaning up your **Preferences** folder, but I'm not sure I'd want to take its search results on trust and throw out everything it identifies as being an orphan. In effect, *PrefKiller* can be used to give you a working short list, and if you're struggling with Preferences you might find that useful enough in itself to cough up the modest shareware fee.



PrefKiller 1.0: good grief, look at all those prefs files you don't need (allegedly). But should you take the plunge and trash them?

QuickHide v2.1.3: the quickest way to get back to a nice, clean Desktop from the middle of an application without a multitude of windows.

QuickHide v2.1.3

SYSTEM EXTENSION

'Whateverware'

Being able to run several applications is great. Switching from one to another and coping with the multitude of windows crammed into your monitor screen is quite a different matter.

When you've got about five different applications running and you want to get back to a nice clear Desktop, you've got to go to the **Applications** menu and remember to hold down the **[option]** key when you select the Finder to hide the last application – and sometimes choose **Hide Others** after that to hide any that just appear.

QuickHide enables you to do all this a little bit faster. Clicking on the little red dot it produces on the menu bar switches immediately to the Finder, hiding all running applications. In the Finder, the dot is green. Clicking on it takes you straight back to the application that you were running previously.

There's more. If you hold down **[control]** and click on the dot, you'll quit all running applications. Note, though, that this might not work with some older programs – applications need to respond correctly to Apple Events for this to function correctly.

It's a nice little gadget that can save you a bit of time and clutter. It doesn't do anything you can't already do, though, and it's up to you to decide whether your Mac really needs yet another System Extension. **MF**

IS IT THE MONEY?

'How much money you made from shareware, Bud?'
'I... can't say exactly, Bill.'
'Well, how much roughly, then, Bud?'
'Well, you know, Bill, it ain't the money.'
'People don't like the stuff, huh?'
'IT AIN'T THAT, Bill. Fact is... well, folks these days just don't appreciate good programmin'.'
'Guess that must be it, Bud.'
'Sure is, Bill. Say, Bill, do you ever use a deodorant?'

IndyCar Racing II

MACFORMAT Classic

Straps bite into your shoulders, sickening G-forces reposition your internal organs and your knuckles go a lighter shade of pale. Are we having fun yet?

Replay options enable you to follow any car through the race from just about any view. Here we're with Jimmy Vasser, looking through his 'roof' camera.

YOUR BAG?

If racing sims are your thing, then check out our review of *Al Unser Jr Arcade Racing* in MACFORMAT 38. Turn to page 128 for details of how to get your hands on that issue.

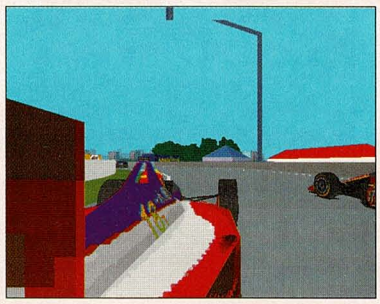
Forget Formula 1. Speed and danger reach new extremes in the American equivalent – IndyCar racing. Overlook a corner and you're met not with a friendly gravel trap, but an unforgiving concrete wall. And petrol is for wimps – IndyCar fuel burns hotter, with a flame that's almost invisible. That's why you'll see pit crews douse the cars with water after refuelling – just to be on the safe side of complete and utter madness.

Papyrus has sought to bring all of these knife-edge elements of motor sport to the Mac in its officially licensed racing sim, *IndyCar Racing II*. Of course, IndyCar as a sport is not overwhelmingly popular outside the States, ranking somewhere between baseball and American football for entertainment value. However, as a sport it's certainly not short of famous names: Andretti, Fittipaldi and Al Unser Junior, to name just a few. The series also got quite a boost from Nigel Mansell's exploits when, following his F1 glory, he won the championship in his debut year. This year, sadly, Mark Blundell isn't faring quite so well...

Motor racing is an expensive business and it comes with very exotic hardware requirements. An engine is only good for one race and costs £100,000 to rebuild. Maybe Papyrus has carried the realism of the game a little too far in this respect – you'll need a PowerMac with at least 16Mb of real RAM before you can even get the game to tick over. You can forget using *RAM Doubler* too, because it just won't cut the mustard. There is, however, a pay-off – all the other elements of *IndyCar* are lusciously realistic too. Best of all, the one element that *isn't* realistic is the cost of taking part. At £16.99, the game sets new standards in amazingly good value.

If you're used to straightlining roundabouts and following the optimum line through the apex of curves in the road when you're driving your real car, you might think that manoeuvering a racing car can't be that difficult. Think again.

Whether you're using a keyboard, mouse or joystick (or even multiple joysticks) to control the car, you're apt to make an embarrassing start. Try easing all that turbo-charged power out in your first practice session and you'll find yourself slamming into the wall before you've even left the pit lane. In the ensuing frenzy of qualifying and warm-up sessions, where you're surrounded by computer-controlled nutters, things will only get worse. You'll be thinking you've signed up for a demolition derby by mistake before you even get as far as the race proper.



Taking a tight line through a curve can give you the chance to pass an opponent, but get too close and you risk interlocking your wheels, sending you spinning off the track and into oblivion.

This might all sound a bit negative, but without the demanding and sensitive nature of these four-wheeled beasts and their highly skilled drivers, where would the challenge be? And besides, help to soothe your white knuckles is close at hand. Automatic gear shifting, auto brakes and even auto spin recovery are all on offer. You can set your opponents' level of ability to anywhere between 80 and 120 percent. You can also play God and set wet or dry weather conditions, as well as wind speed and direction. You can even make your car invincible, so while you're ploughing into your competitors, literally knocking off wheels and spoilers and generally creating total mayhem and carnage, your own car won't even pick up a scratch.

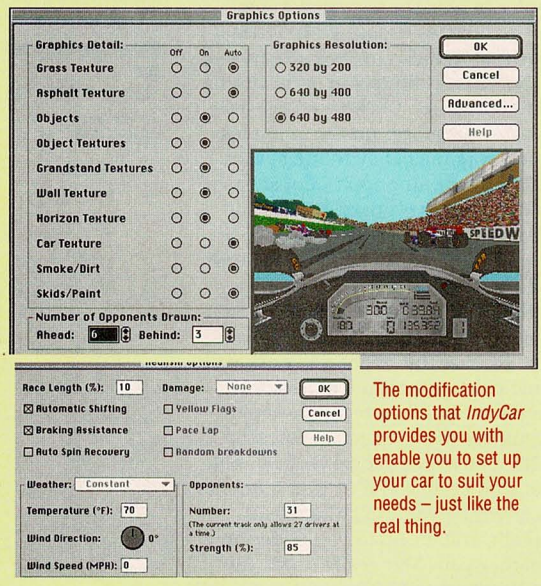
The cars themselves are so responsive it's uncanny. Even more impressive are your computer-driven opponents

But while *IndyCar* is always very, very good, in certain areas it breaks through into superlatives. The first is the graphic detail, which is stunning. Little things, like the way the yellow Good Year lettering on your tyres revolves faster and faster into a blur as you pull away, are cute. Even better is the lavish attention to detail on all the cars – right down to the smallest decal. Then there's the astonishing texture of

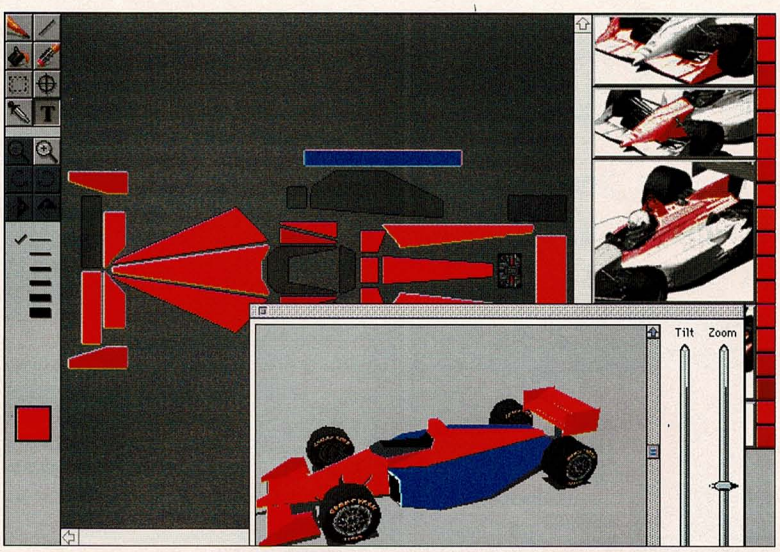
Snaking around the final turn, the procession of cars pulls up tight to the pace car as it leaves the circuit. Let battle commence.

IN CONTROL

If you're a control freak, *IndyCar II* will suit you right down to the tarmac. All sorts of control options pop up to give you authority over practically every aspect of vehicle control, simulator realism, graphic detail and resolution, and that's all before you even get to the garage to consult with your pit crew and set up the car.



The modification options that *IndyCar* provides you with enable you to set up your car to suit your needs – just like the real thing.



In the paintshop you can design your own colour scheme and see the results in 3D animated form (inset panel). In theory, you can also add decals, though this feature failed to work in our tests.

the asphalt, grass, fencing, grandstands and surrounding scenery, as well as the smoke, skid marks, dirt and paint. To help your Mac cope with this visual cornucopia, you can turn any of these fancy features on or off individually, or you can set everything to automatic and let your Mac decide what it can manage on the fly. Or you can select the options you really want – like skid marks to help you figure out your braking points coming up to bends – and let your Mac work the rest out for itself.

At the end of the day, however, the graphics are little more than mere cosmetics. What really counts is the way the sim actually drives, and again, *IndyCar* is astonishingly good. It's a constant battle of skill, brinkmanship and daring from the moment you fight to balance speed and traction at the race start. You'll watch the smoke from your tyres fill your wing mirrors, as you hold the car on the edge of adhesion through braking and cornering, all the way to a screaming finish.

A game of inches

The cars themselves are so responsive it's uncanny. Even more impressive are your computer-driven opponents. Their enhanced artificial intelligence keeps them on the lookout, ready to take advantage of your slightest mistake. And beware – they're ruthless.

If you're a dedicated techno-head, there's plenty of fun to be had in the pits, where you can make the most minuscule adjustments to wings, tyre pressures, gear ratios, ride height and so on. It's a game of inches, or so the fans say, and all these little tweaks can make the difference between glorious success and outright failure.

While this game is also available for the IBM PC, one very neat feature that's only available on the PowerMac is the option to communicate with your pit crew. This makes use of Apple's PlainTalk speech recognition wizardry to enable you to bark instructions to the men in overalls.

This is a real epic of a racing game, sprawling over 15 highly detailed and realistic circuits. The whole season's tracks are lovingly reproduced, from Laguna Seca and Long Beach all the way through to Surfer's Paradise in Australia. There's a great mix of oval circuits, with their dauntingly banked curves, and twisty-turny street circuits – each with its own particular challenges. *IndyCar Racing II* is spectacular simulation at its finest, and great value into the bargain. 200mph has never seemed so fast.

MATTHEW RICHARDS

INDYCAR RACING II

Price: £16.99. **Out:** September.
Requires: PowerMac, 16Mb of RAM, System 7.1 or later, 256-colour monitor, double-speed CD-ROM drive, 15Mb of hard disk space (45Mb recommended).
Contact: Sierra on 01734 303322.

GRAPHICS 90%
Highly detailed, yet smooth scrolling with a good frame rate. The ability to turn individual graphic elements on and off to maximise speed is great.

SOUND 82%
Could be better, but then in real life you'd hear everything through ear defenders and a crash helmet, so fair's fair.

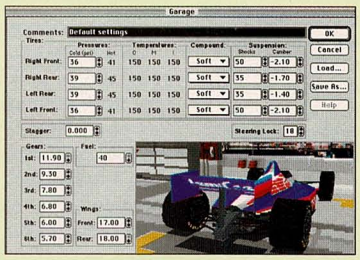
GAMEPLAY 94%
Astonishingly good. The cars handle superbly and the artificial intelligence of your computer-driven opponents is spot on. Extra help for novice drivers is good too.

MACFORMAT RATING 94%

FROM PIT LANE TO CHEQUERED FLAG

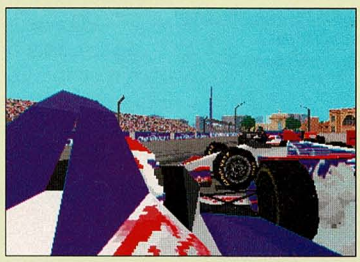
From the moment you turn up at the circuit, the pressure is on. Learn as much as you can about your car's handling through the free practice sessions, then make any set-up changes as needed. When it comes to qualifying, you'll need to put in some blistering laps to start anywhere near the front of the grid. When the race proper finally gets underway, you'd better prepare yourself for pure mayhem. It's a very long way to the finish line...

There are 15 circuits to choose from, including impossibly fast ovals and tough street courses. This one is the demanding Exhibition Place street circuit in Toronto.

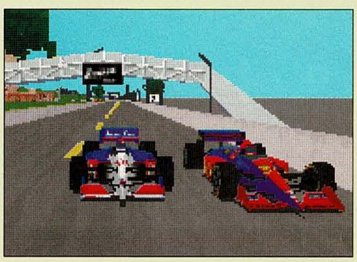


You can change tyre compounds and pressures to suit each circuit, select gear ratios, try different shock absorber and camber settings and even alter the front and rear wing settings to combat oversteer or understeer.

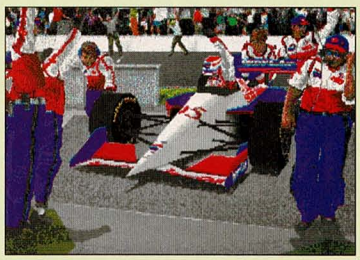
Qualifying is a frenzy of activity. You can try and get out quickly, or wait to see how others get on. Either way, your 'black box', hooked up to the digital instrument panel, relays vital information. How about more turbo boost?



Despite a reasonable qualifying time, you're a few cars back down the grid and the lunatic in front has managed to spin at the first turn. You can avoid cutting him in half, but now you've got it all to do to catch the guys in front.



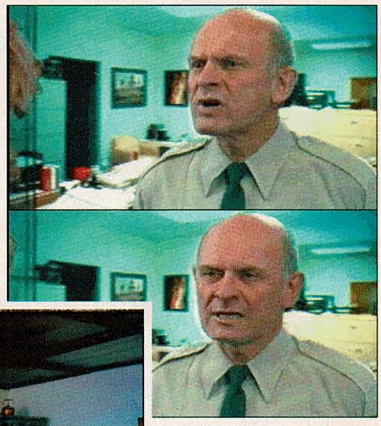
Here's your finest moment, as viewed on the replay after the race. You can watch all manner of in-car and external views, as well as pictures from the TV cameras and blimp.



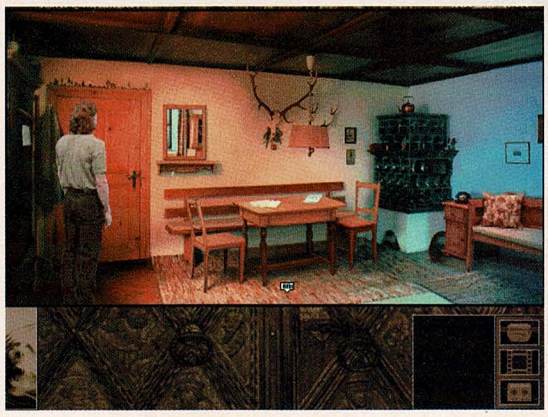
And this is the final reward. Take your place in the winner's enclosure to be greeted by an ecstatic pit crew and adoring fans. No doubt your picture will be all over the sports pages of the national press tomorrow morning.

The Beast Within

After years of getting it wrong, have game designers finally found an effective way to use new technology in games? Confront your inner demons and find out...



(Top) One very angry German Policeman. Angry in German as well. Which is nice.

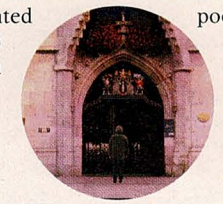


(Left) The icons at the bottom the game screen give you access to your inventory (useful items), your tape recorder (to recap on important encounters) and the Game Save and Reload bits.

Generally, there seem to be more pitfalls in this world for programmers than there are for politicians. One of the biggest is the result of using new technology in old game formats. On the one hand, Mac hardware capable of creating photo-realistic graphics and playing full motion video (FMV) is now fairly widespread, but on the other, there's no real understanding among authors of how to use multimedia to make good games.

The Beast Within is an adventure game where you play two lead characters. Both are trying to solve the mystery of the Munich Mutilation Killings, thought to be the work of werewolves.

At a basic level, the game works in a way you'll find most familiar if you're a Mac adventurer – you use your mouse to scan over game scenes looking for 'hotspots' (indicated by a change in cursor shape) that your character can then interact with. However, in terms of innovation and, more importantly, actual gameplay success, that's where the comparisons between *The Beast Within* and just about any other adventure game on the market begin and cease.



The tourist tour of Munich is interesting, but not compulsory for successful mystery solving.

You see, a lot of adventure games have tried to integrate video and stills into the playing environment, and the results have usually ranged from 'Hmmm...' to 'Aaarrgh!'. The most common complaints are that the video slows the game down and that there is still a vast difference between the quality of the video (good) and the actual game screen (average to poor). *The Beast Within* is probably the first game at which you really can't level such an accusation.

After a lengthy introductory movie, the game begins. You play Gabriel or Grace but from a third-person perspective (you can see them on screen) and the game scene is represented almost as a video still. Click a direction command where the cursor changes to 'exit' – usually near the edge of the screen – and your character will start to walk. After a second or so, the action will cut cinematically to either another positional scene or a short video clip of Gabriel or Grace doing something. If for any reason you are back-tracking or replaying sections, you can skip the video scenes with a click of the mouse, ensuring that you're in no danger of becoming bored or frustrated.

This system provides the most seamless integration of character movement, story building and game interaction that you'll have seen so far on the Mac. The excellent game engine is probably in part inspired by the superlative overall story and game structure that it frames. The original author of *Gabriel Knight*, Jane Jensen, has scripted an adult adventure (the game is likely to receive an '18' rating for its – reasonably justifiable – scenes of sex and violence) that rings true as a story as well as a game. Special applause must also go to Jensen for setting *The Beast Within* in a contemporary European location, not flinching from making the lead characters seem out of their depth in this environment on occasions. It makes a pleasant change to play an adventure game and not feel the need to apply for a Green Card just to get into the opening credits.

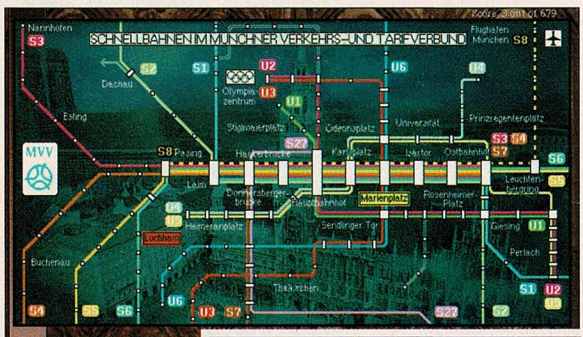
The Beast Within is no gentle jog between beginning and endposts – you'll need to pay plenty of attention and devote perhaps months of play to completing it. It isn't entirely without some adventure game annoyances – it's easy to get hopelessly stuck, Gabriel's Southern States drawl gets very annoying very quickly and the use of inventory items is perhaps not as smooth as it could be. But these are minor quibbles, considering the overall achievements of the game. If you have the brain power to match your Mac power (and plenty of time on your hands), *The Beast Within* comes highly recommended. **James Ashton**

Round 2

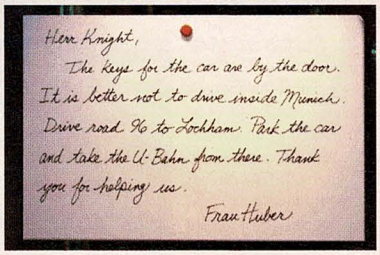
This is Gabriel Knight's second outing on the Mac – his first was way back in MacFormat 19, where he was called upon to solve a series of Voodoo murders in *Sins of the Fathers*. The major difference between the games is the use of FMV and digital animation in *The Beast Within* to replace the cartoon graphics and sprites of *Sins*.

Sprechen Sie Deutsche?

The German setting of *The Beast Within* makes a pleasant change from the usual bland Americana that we've come to expect. However, even if you don't speak a word of German, it'll soon become clear that bad acting is very easy to spot, whatever language it occurs in.



Movement between scenes is achieved via this Metro map – a very environmentally friendly solution.


Here Knight,
The keys for the car are by the door.
It is better not to drive inside Munich.
Drive road 96 to Lochham. Park the car
and take the U-Bahn from there. Thank
you for helping us.
Frau Huber

One of the game's less subtle clues. Well, it's a set of instructions really, let's be honest.

The Beast Within

Price: £49.99. **Out:** this month.
Requires: Quadra or better, 12Mb of RAM, System 7.1 or later, 640 x 480 256-colour screen, double-speed CD-ROM drive.
Contact: Sierra on 01734 303171.

Graphics 88%
Hard to fault really. The game doesn't fall into any of the traps usually associated with FMV adventures.

Sound 79%
Well integrated throughout. The sound effects won't blow you away, but the speech is well above par.

Gameplay 84%
A sprawling (six CD-ROMs!) and highly challenging adventure game, the pace of which you can dictate for yourself.

MacFormat Rating 84%

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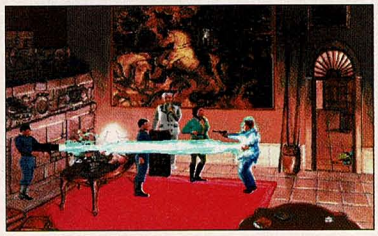
Prisoner of Ice

There may well be aliens from other worlds lurking below the surface of the ocean, but will you get to meet them before you're struck down by sea sickness?



Being held at gunpoint? Better hope that a total stranger appears to rescue you... Phew!

RECOMMENDED

So what's all this fuss about H P Lovecraft then? If you want to find out more, try reading *At the Mountains of Madness*. Published in paperback by Grafton, it's available in all big book stores.

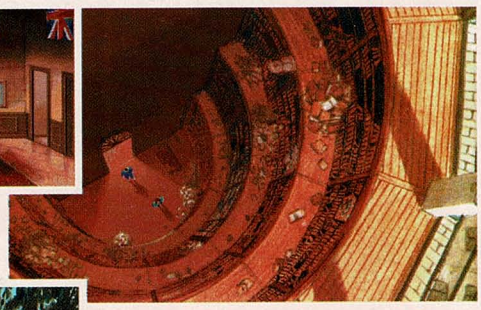
ROLE PLAY

If you're keen on roleplaying games, then you should check out *arcane*. Published every four weeks by Future Publishing, the company that produces MACFORMAT, it's edited by Paul Pettengale and covers all aspects of roleplaying and gaming.

The whole concept of H P Lovecraft's Cthulhu mythos – that there are aliens lurking behind the scenes on our world, ready to take over the Earth at the appointed hour, 'when the stars are right' – not only sounds like a plausible explanation for the behaviour of the Bureau in *The X-Files* but also a pretty good starting point for a game. And indeed this has been recognised, for more than a decade ago Chaosium released a roleplaying game called *The Call of Cthulhu*. That roleplaying game has since been adapted; first *Shadow of the Comet* appeared for the PC and now for the Mac comes *Prisoner of Ice*.

The dark, brooding atmosphere which pervades Lovecraft's novels has been successfully recreated with this digital adaptation. The action begins on a World War Two American submarine, where there's a claustrophobic urgency that keeps your attention focused. The fact that there's a monster straight our of your childhood nightmares in the hold, which has already offed the captain of the ship and rendered another member of the crew completely mad, certainly doesn't help matters a great deal.

Uh oh, you're in trouble now. Still, the cheery flags in the background should take your mind off it.

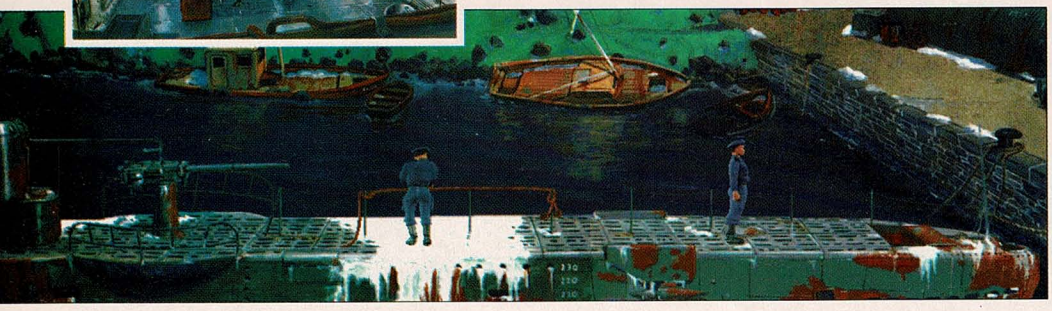


Dramatic shifts in perspective are an odd *Prisoner* feature – watch out if you suffer from vertigo!

The law is everywhere, but you really don't want to tangle with the South American police.

The suitably macabre plot isn't assisted by the linear way in which the adventure has been constructed, especially on a micro level. Your progress through the game is a tedious affair, primarily because it rests almost entirely on finding specific items and employing them correctly to perform a multitude of rather mundane tasks. This wouldn't be *so* bad if these items were easy to find, but this isn't the case. There's one section, for example, where you need a particular book. You're in a library, and when you move the mouse pointer over the books on the shelves the word 'books' appears. However, when for a fraction of a second you move the pointer over the specific book you're after, the word changes to 'book'. Needless to say, it takes an age before you notice this slight change, and you rapidly adopt the practice of simply moving the mouse pointer over every pixel on the screen looking for new 'stuff' in a random fashion, instead of trying to progress through each screen logically.

The backgrounds give a subdued, threatening air to the game – just a pity the whole thing's not more exciting.



This whole element is a great shame, because the parts which make up the rest of this title represent the very best in adventure gaming. The graphics, for example, are quite superb – intricate in detail, with full attention paid to recreating the feel of the Lovecraft stories. The ambient sound is also up there as some of the best you're going to find in any Mac game – the background music floats and swirls to form a mildly chaotic, hypnotic ensemble. The speech, accompanied by on-screen text, has been recorded to a high level of precision and the actors have done a fine job.

So, *Prisoner of Ice* gets full marks for presentation; it's just a shame that more hasn't been done with the material in the vital gameplay area.

If you're a Lovecraft fan, you'll probably enjoy playing *Prisoner of Ice* – if only to experience the feel of the literature in a Mac game. However, on the whole I can't help but feel that this is a missed opportunity. For all its simplicity, *Shadow of the Comet* was a far better game because it relied more on brain power, rather than simply moving the mouse around every section of the screen. So come on, Infogrames, if you must do another *Cthulhu* game, put as much effort into the gameplay as you put into the presentation. **PAUL PETTENGALE**

Cheer up, you miserable so-and-so – it's only a game. Enjoy yourself, dammit!

PRISONER OF ICE

Price: £44.99. **Out:** now.
Requires: LC or better, 6Mb of RAM, System 7 or later, 256-colour monitor, CD-ROM drive, *Sound Manager 3.1*.
Contact: Infogrames 0171 738 8199.

GRAPHICS 90%
Not lacking in any area, though sometimes the objects you're supposed to be finding are a touch obscure.

SOUND 89%
Lovely music and good speech, but both a little quiet at times.

GAMEPLAY 40%
Captures the Lovecraft style, but the whole thing relies on moving your mouse more than exercising your brain.

MACFORMAT RATING 54%

Panzer General

'Right, men, the Germans are advancing on Tobruk and it's up to us stop them!' Ah, wrong side. Rewind. 'Die Briten sind auf der Flucht, Leute, jetzt haben wir sie!'

Considering that *Panzer General* is something of a veteran wargame, it stands up to the test of today's technology remarkably well. First released around 18 months ago, it redefined the level of historical accuracy and graphical standards expected from a serious simulation. Today, although it has been superseded on both counts, it remains a highly playable, extremely slick game.

Panzer General is a hex-based game in which you play, as the title has probably revealed to you in a Blitzkriegly obvious fashion, the Germans. This is not something to be worried about, however, as the bulk of the game is set near the start of World War II during the German expansionist offensives.

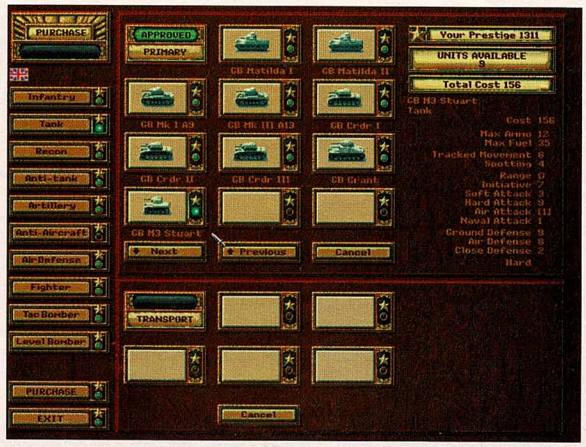
There are five major campaigns included in the game for you to try your tanks at: the 1939 Northern Europe invasion that marked the start of the war; the 1941 ding-dong battles across the North African coast where Rommel taught the Allies a lesson in Panzer tactics; the 1941 push into Russia, which marked the greatest land invasion ever; the 1943 defence of Southern Europe as the Allies launch their offensive; and the last ditch thrust back into Russia in 1943.

The feeling of atmosphere attached to each of the scenarios is excellent and is at the heart of *Panzer's* strength. You can play each campaign as a whole, or alternatively you can select any of the battles from throughout the war to play individually. This not only provides a huge playing time, but enables you to dip into the game at your leisure – even if you're a less fanatical, inexperienced player – always vital in wargames that can easily become overwhelming.

If you are brave (or unemployed) enough to go for the full Monty, it's genuinely a worthwhile experience. This stems from a combination of *Panzer's* strengths, but in particular the quality of the computer opponent that exists to thwart you. It makes a change to fight an opponent that is challenging, yet (seemingly) does not resort to cheating. Your Mac's moves are intelligent, yet not entirely predictable – the perfect balance in a game like this. There are adjustable difficulty settings to help you cope with the more vicious battles or accommodate your skills if you're a beginner, but even when you have awarded yourself a generous advantage your Mac generally puts up a decent fight. If there is any gripe with the whole game, it's that during larger battles the computer can take a while to make its moves, particularly if you're using a less powerful Mac.

Even if you're a seasoned campaigner, the tactics, missions and feeling of the game are continually impressive. The in-game combat graphics are as good as can be expected for a 2D top-down game, with the geographical setting of each scenario reflected perfectly. You can toggle the units and grids on and off if the playing area becomes too crowded and you need to see the underlying topography. It is still annoying that the units are shown as squares within hexagonal grids, though.

Get your ships prepared for a vicious shore bombardment. Man the lifeboats!



Tailor the composition of your forces to suit your own tastes, plans and strange idiosyncrasies. As time passes, more hardware becomes available.

Surrounding the battles themselves is the final blast from *Panzer's* armoury. As campaigns and missions progress you have the opportunity to requisition equipment to supplement your forces. New technology becomes available at specific points during the war, giving you the opportunity to bolster your forces. The unit's statistical screens are enormously detailed, the video footage is reasonable and both of these contribute further to the feeling that you are really involved in the war.

All in all, *Panzer General* offers you 35 scenarios to play with. Let's face it – it's not a game you're likely to get bored with in a hurry.

Panzer General and its wargame brothers have already made a lot of money. Give them some more, because this is really worth playing, especially because you get involving war-game action without needing to own a very powerful Mac. **Jim Flynn**

Panzer General

Price: £44.99. **Out:** now.
Requires: LCII (PowerMac recommended), 8Mb of RAM, System 7.0 (7.5 recommended), double speed CD-ROM drive.
Contact: Mindscape on 01444 246333.

Graphics 74%
Flash but functional. Mellow colours make the hours in front of the screen as pleasurable as could be expected.

Sound 68%
Better to pop on Mahler's 2nd than listen to the squawky accompaniment. Acceptable explosions though.

Gameplay 83%
If you want quick kicks, you won't find them here, but you will discover some engrossing long term strategy action.

MACformat rating 80%

The Legend of Kyrandia

Book 3: Malcolm's Revenge

Despite a long history of big smiles and silly walks, clowns have always been, frankly, terrifying. This one's different – he's terrifying and on a mission...

Yum, there's nothing like a Fish Cream sandwich, but beware – the game can get confusing in these crowded scenes.

Though the custard pie is a relatively new invention, the individuals that throw them have been making people squirm awkwardly in their seats for centuries. Back in the dark ages, when the third game in Virgin's *Kyrandia* series is set, these characters of creeping dread were known as jesters. Malcolm is one such prankster, out to clear his name of the murder of King William and Queen Katherine, and reclaim the kingdom from tyrant leader Kallak. Got that?

And so begins Malcolm's quest, a pariah attempting to leave Kyrandia and find enough magic to return and conquer the island. For now though, he's equipped with only the junk he can find on his travels, his jester's staff and a sense of humour. That's right, humour – it was written into the commandments, just above that stuff about oxen – 'And thine graphic adventure shalt be hilarious'. *K3* isn't funny in a vaguely-clever-subtle-witty kind of way, though, it's more of a cheap-sitcom-dumbcrack-I'd-buy-that-for-a-dollar-type affair, accompanied by too much laughter from the easily-amused studio audience, pratfalls and unhelpful comments from a stubbly old cigar-smoking guardian angel. The voice parts are clear and moderately well acted, incidentally, with optional subtitles in English, French and German.

A nice touch is Malcolm's mood-o-meter – a dial you can adjust to make him cloyingly nice, as sarcastic and bad tempered as usual, or lie through his teeth. This affects both how well your conversations go (unearthing handy information) and how Malcolm deals with certain situations.

The first major difference between *Kyrandia 3* and other graphic adventures is that your screen isn't cluttered with statistics and action buttons. This is partly because the inventory bar slides up into view when you move your pointer in its direction, and partly because there aren't any commands anyhow. Gone are *Monkey Island's* **Take**, **Drop** and **Use** buttons, replaced by a mere pointer. Clicking on an area of ground will send Malcolm wandering over, clicking on a person will spark off a conversation, and clicking on an object will make Malcolm pick it up. You can then use this object in conjunction with other objects and parts of the scenery, or shove it in the ten slot inventory for later use. All of these actions require just one click in the right place. This system makes the keyboard entirely redundant, and makes for few mouse clicks – is this the future of point and click? Well, it has a downside...

Your inventory and (minimal) control bar slides up when your pointer goes anywhere near it.

For a start, there are times when Malcolm will completely misinterpret your clicks – you meant for him to stroll over to a different area of the screen, but he decided that you clicked way too close to an object and so starts nattering about it. While hardly a heinous crime, this does cause problems in busy locations – the Fish Cream Parlour, for instance.

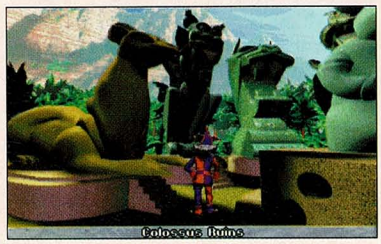
The second problem with this system is that the diversity of things you can attempt is limited by the versatility of the objects. An easy (yet long-winded) way to solve any puzzle is to click on every object or obstacle, unearthing a result sooner or later. This is no way to play a game, but at times it's what you find yourself unintentionally doing, as you fumble about trying to find the contrived combinations left behind by the programmers.

It will only be a matter of time before you find the right item to shove down the mime's hood, but you'd never guess that you had to fertilise the sesame seeds with the eel, or work out what to use the resulting mix for. The saving grace of the situation is that there are several ways to complete each stage of the game, so a total lack of knowledge on the subject of cross-breeding plants and fish won't hold up your progression too much.

However, to make a moderate game all the more difficult, *K3's* designers have used some low-down tricks: for instance, there's the 'mysterious forest' in the Isle of Cats, which involves a set of randomly linked locations that don't make spatial sense. You'll get lost if you stroll even one location deep – no fun. Several other tricks of a similar nature tend to seriously mar the gameplay at times.

In all, *Kyrandia 3: Malcolm's Revenge* is a reasonably worthy game. There's nothing really new to see here, but what there is has a personality of its own and, yes, some of it is actually a bit funny. If you can overcome a faintly weird interface and some extremely odd ideas about what goes into making a puzzle, you'll discover a detailed, humorous and pleasantly quirky game. Not one for the history books, though.

Simon Forrester



Should you get through the mysteriously unfair forest, the cat ruins make a great photo.

Ancient history...

Earlier books in the *The Legend of Kyrandia* series were released aeons ago. They were also published for the Mac by Virgin, and you can find out more about them by contacting Virgin on 0171 368 2266.

Legend of Kyrandia 3

Price: £34.99. **Out:** now.
Requires: LCII or better (33MHz), 4Mb of RAM, 256-colour monitor, double-speed CD-ROM drive, 12Mb hard disk space.
Contact: Virgin on 0171 368 2266.

Graphics 75%
Fairly well drawn cartoon-style work, cut together with the occasional bit of QT – nothing to get too excited about.

Sound 80%
Light jazz accompanies well-acted voice parts and competent sound effects. Oh, but the jokes, though...

Gameplay 65%
Some illogical puzzles, irritating repetition and a fair bit of aimless wandering spoil an otherwise involving game.

MACFORMAT RATING 75%

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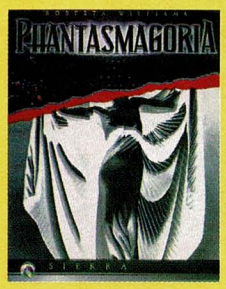

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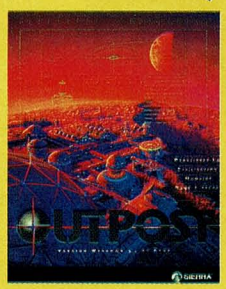

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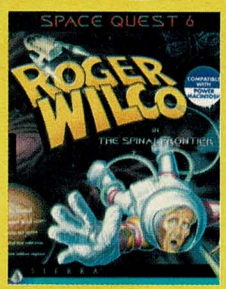

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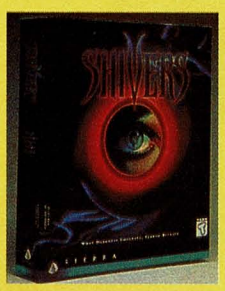

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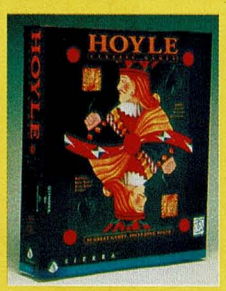

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ISSUE 30

November 1995

■ **On the disk:** *MacPipes; MacQubic; Gossamer; Do It All!* personal organiser.
■ **On the CD-ROM:** Sorry, the CD-ROM edition is no longer available.
■ **Inside:** Publishing on the Net and CD-ROM; QuickTime utilities; *Alone in the Dark; SmartSketch;* input devices – alternatives to the mouse.

Order codes:
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ISSUE 31

December 1995
Double-disc special!

■ **On two disks:** *Color It! 2.3.5* – full version; *Factory.*
■ **On two CD-ROMs:** Sorry, the CD-ROM edition is no longer available.
■ **Inside:** 50 ways to make your Mac run faster; *ClarisWorks 4; Doom 2; SoftWindows;* personal organisers; programming.

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ISSUE 32

Christmas 1995
Free MacGamer supplement!

■ **On the disk:** *Pentominoes; Frog Xing; Xmas Lights, FindText 1.3* utilities.
■ **On the CD-ROM:** Sorry, the CD-ROM edition is no longer available.
■ **Inside:** Create great art on your Mac; the new range of PowerMacs; *PageMaker 6;* kids' multimedia.

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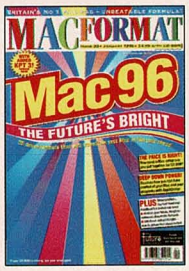

ISSUE 33

January 1996
Free alternative manual!

■ **On the disk:** *Eclipse 3; Altair 2; Gravity Balls 1; TextBrowser 1.1; Aaron.*
■ **On the CD-ROM:** *Doom; Descent; Voodoo Lounge;* education demos and more.
■ **Inside:** What's happening on the Mac in 1996; *KPT 3; Day of the Tentacle; Aladdin;* guide to buying a Mac setup.

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ISSUE 34

February 1996

■ **On the disk:** *Disk Wizard; DOCMaker 4.1; SoundApp; ScreenShot; Symbionts.*
■ **On the CD-ROM:** Sorry, the CD-ROM edition is no longer available.
■ **Inside:** New 3D graphics technology and software; storage systems; kids' multimedia; *ClarisImpact 2; Doom 2* tips; handling text files.

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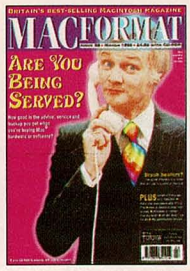

ISSUE 35

March 1996
Free DTP tips book!

■ **On the disk:** *Smoothie, Shatterball, NoteBook Maker, Diagonal* and *BeerStack.*
■ **On the CD-ROM:** *Fractal Design Painter 4, Klik & Play, Code Warrior Lite* complete.
■ **Inside:** Mac service & backup assessed; Natural Media; *PageMill;* foreign file formats; *Marathon 2.*

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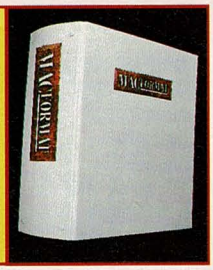

ISSUE 36

April 1996
Double-disc special!

■ **On two disks:** Multimedia suite, including *ProView.*
■ **On two CD-ROMs:** Sorry, the CD-ROM edition is no longer available.
■ **Inside:** Create your own multimedia; CD writers; *Rebel Assault 2; Lightning-Draw GX;* 3D clip art; *SoundEdit 16.*

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ISSUE 37

May 1996
Free MacGamer supplement!

■ **On the disk:** Guide to Mac upgrades; *Quark* game; *SimpleBackup; Fly Swatter.*
■ **On the CD-ROM:** Interactive guide to upgrading your Mac; *Full Throttle, InfoGenie* demos.
■ **Inside:** Giant fold-out Mac family tree; Mac upgrades; *FileMaker 3; Illustrator 6.*

Order codes:
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ISSUE 38

June 1996

■ **On the disk:** Print utilities; freeware fonts; *Flippers; Biorhythms; Munchies.*
■ **On the CD-ROM:** *ClarisWorks 4.0 updater, Live Picture; X-Wing; Ice & Fire; World History* demos.
■ **Inside:** Perfect printing made easy; colour printers reviewed; *Live Picture 2.5; xRes 2.0; Bryce 2.*

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July 1996
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■ **On the disk:** *Skittles* game; *Digital Address Book*
■ **On two CD-ROMs:** Internet essentials; official System 7.5.3 update; graphics spectacular; Claris suite; *Afterlife*
■ **Inside:** Discover the Internet; *Extreme 3D, Ray Dream Studio, PhotoDeluxe* reviewed; literacy multimedia

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ISSUE 40

August 1996

■ **On the disk:** 16 System enhancers; *FlipSide;* 90 icons
■ **On the CD-ROM:** complete *Myst* screensaver; demos of *UniQorn, Fontographer, BeyondPress 2* and *HexWeb*
■ **Inside:** Text manipulation; huge group tests of 15- and 17-inch monitors, plus speakers; multimedia music titles; handling alien graphics

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HD Disk MFHD40

ISSUE 41

September 1996

■ **On the disk:** *DeBabelizer Lite LE* complete; 8 utilities
■ **On the CD-ROM:** demos of *Photoshop 3.0.5, Director 5.0* and *Hexen; Goo* movies; graphics shareware
■ **Inside:** Huge image manipulation feature; tests of scanners & digital cameras; numeracy multimedia; *Let's KISS* spreadsheet; *Director 5*

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HD Disk MFHD41

Free reader ads

Whether you want *Claris* or a CPU, *Kyrandia* or a keyboard, *Photoshop* or a processor – someone's selling it here!

HARDWARE FOR SALE

■ **Performa 475** 8/160, Quad Speed CD-ROM, lots of software, Internet-ready, lovely machine to use. PowerMac forces sale – £600. ☎ 0973 553258

■ **Performa 630** 12/500, DOS compatible, excellent condition, boxed, guaranteed, plus keyboard and mouse, all original manuals and disks – £950 ono. ☎ 01203 319415

■ **SE/30 8/80,** excellent condition but monitor has given up ghost, extended keyboard and carry case – all reasonable offers considered. Rob ☎ 01932 228431 (eves)

■ **PowerMac 6100/60** 16Mb, 15-inch monitor – £750 ono; PowerMac 6100/60 8Mb, 14-inch monitor – £600 ono; LaserWriter and other extras. John, Surrey ☎ 0181 942 1374 (eves)

■ **4.3Gb hard disk,** three months old, boxed – £600 ono; LCII 4/40, monitor, loads of extras – £400 ono. Jason Northampton ☎ 01604 604659 (eves)

■ Attention 5300s and 190s PowerBook users: **TDK DF2814 Global Class PC modem**, 'free' with PowerBook purchase, shrinkwrapped. RRP £299 + VAT – sell £175. ☎ 0181 552 4874

■ **Mac SE/30** 4/40, keyboard and mouse, excellent condition – £395; extra 5Mb of RAM available – £75. Chris ☎ 01905 29601

■ **Performa 400** 4/80, ten month warranty, excellent condition, home use only, includes monitor, keyboard, mouse, StyleWriter, manuals and packaging – £550. London ☎ 0181 442 4055

■ **Mac IIci** 20/160, System 7.5, DTP programs loaded, 12-inch greyscale monitor, extended keyboard, mouse – £450. Danny ☎ 0181 508 1301 or 0171 379 1155 (after 7pm)

■ **Mac IIcx,** colour monitor, keyboard, mouse, portable CD-ROM drive, System 7.1, incl. CDs, disks, mags and *ClarisWorks 2.0* – £400. Adam ☎ 0402 523071 (after 6pm)

■ Apple Mac – **various cables:** printer cable – £5; keyboard cable – £5; SCSI cable – £8; SCSI 50-50 – £10; Microphone – £8. ☎ 0181 548 0403

■ **Mac LCII** 10/80 CPU, plus Apple extended keyboard and extras, VGC – £350 ono; Apple personal LaserWriter – £150. Dorset ☎ 01308 863547

■ 2 x **8Mb 72-pin SIMMs** – £125 each or £200 for both, brand new, sealed with lifetime warranty. Huddersfield ☎ 01484 544633

■ **PowerMac 6100/60** DOS 16/270 and new 15-inch monitor, keyboard, all top DTP software – £1,150; 80Mb internal HD – £25. Richard ☎ 0421 831290

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■ **Power Macintosh 6200** 24/500, quad-speed CD-ROM drive, Apple 14-inch monitor, extended keyboard, mouse, boxed – £1,000. Graham ☎ 0113 285 2646 (eves)

■ **Mac 'n' Fax 14,400bps modem,** unwanted gift, barely used, boxed with all software and manuals – £110 ono. ☎ 0181 540 3090

■ **ImageWriter II,** domestic use only, complete with sheet feeder, manual, spare colour ribbon, but no cable – £65. ☎ 01604 407871

■ **AppleMac SE30** 4/40, keyboard, mouse – £300 ☎ 01458 860486 (eves only)

■ **Apple internal fax modem,** 14,400bps, unused, fits Performa 630 onwards, includes fax/answerphone software – £80 ono. ☎ 01524 35262 or e-mail **tom@tphill.demon.co.uk**

■ **Quadra 660AV** 8/230, 14-inch monitor, keyboard, mouse, StyleWriter II printer – £700; *Photoshop 2.51/3* CD manuals, disks – £175; *Aldus Collection: PageMaker, Freehand 4, Persuasion 3, Fetch 2, Pro-Pac CDs* – £350; 100 TrueType fonts – £30. ☎ 01946 694071

■ **PowerMac 7100/66,** 24Mb of RAM, 15-inch Sony monitor, Personal LaserWriter, double-speed CD-ROM, 14,400bps modem, Quickcam, Stereo speakers – £1,950 the lot. Michael ☎ 0171 431 1166

■ **PowerBook 5300C** 16/750 (and 8Mb installed extra RAM), still boxed, carry case, manuals, cables, TDK Fax PC card modem, warranty, new job forces sale – £3,300 ono. Jo ☎ 01323 484761

■ **LCIII** 8/80, monitor, keyboard, Apple CD-ROM, StyleWriter II, *ClarisWorks 4.0*, all leads and manuals – £550 ☎ 01243 528037 (eves)

■ **Apple LaserWriter Select 360,** new still in box, with toner/cables etc, genuine sale. Charlotte ☎ 01734 622660 (day) or 01784 477442 (eves)

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■ **Apple 12-inch RGB colour monitor,** excellent condition – £95 ono; Apple 40Mb one-inch internal hard drive, reliable – £25 ono. Simon ☎ 0171 289 7364

■ **PowerBook 540** 12/240, as new, 8Mb of RAM added since purchase, two batteries – £950, no offers. Suzy ☎ 01727 842726

■ **Performa 6200/75** 24/500, quad-speed CD-ROM drive, 17-inch monitor, CDs including *Dinosaurs, Ultimate Human Body, P.A.W.S*, plus magazines with CDs – £1,500. Kent ☎ 01732 361442

■ **4Mb 72-pin SIMMs** – £45; 8Mb 72-pin SIMMs – £90; Mac and PowerMac games. Simon Jones ☎ 0115 913 7596 (messages only), 01480 575333 ext 272 (work hours) or e-mail **puss_in_boots@intecc.co.uk**

■ **LaserWriter Select 310,** 4Mb of RAM, new toner cartridge – £350; 4Mb RAM for Performa 630 – £40; Colour StyleWriter 2400 – £190; hardly used. Matthew ☎ 0181 744 0433

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UK USER GROUPS

The User Group Council provides a list of all the user groups registered with them. If you wish to contact the Council, ask for John McKnight ☎ 0181 314 5555.

Local user groups:

- Aston University Mac UG, Birmingham area, contact Ray Tier ☎ 0121 359 3611
- Berkshire Mac UG, Ian Burn ☎ 01734 813669
- Blackburn Mac UG, Roger Moreton ☎ 01254 670043
- Bristol (BAUD), Malcolm Ingsley ☎ 01454 616846
- Cambridge Apple UG, Ian Archibald ☎ 01223 311157
- Cancer Research/RMH UG, Raymond Henry ☎ 0181 643 8901 ext 4636
- Gateway UG, Norfolk area, Verne Anderson ☎ 01638 513000
- Glasgow Mac UG, Stephen Broadfoot ☎ 0141 339 6646
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- Midapple, West Midlands, William Watson ☎ 01384 277921
- Midland Mac UG, Worcestershire, Ivan Knezovich ☎ 01299 402631
- North West Apple C C, George Evans ☎ 01270 583714
- Nottingham Mac UG, David Nicholson-Cole ☎ 0115 945 5077 or 0115 945 5444
- Poole Mac UG, Bob Lister ☎ 01202 684441
- S E Essex Mac UG, Michael Foy ☎ 01702 468062
- Southampton Mac UG, Clive Marklow ☎ 01703 293453
- Southern Mac UG, Salisbury area, Roger Ford ☎ 01722 780102
- Southwest Mac UG, John Elver ☎ 01272 693119
- Staffordshire Poly Mac UG, Mark Stiles ☎ 01785 52331
- Sussex UG, Hastings & E Sussex, Garry Nevin ☎ 01424 714110
- West Midlands UG, Danny Torbica ☎ 01902 336172
- Yorks & Humberside Mac UG, David Vardy ☎ 01423 358853

Thematic User Groups:

- BAPC (Printers), Derek House ☎ 01228 513621
- Christian Mac UG, Paul Wareing ☎ 01789 490153
- Corel Draw UG, Jill Foster ☎ 01509 415101 or 01509 620442
- Developers UG, John French ☎ 01895 672654
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- Helix UG, John Sandell ☎ 01763 273379
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- Microsoft UG, ☎ 01252 834995 – ask for Enquiries
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- Newton MessagePad West Yorks User Group, David ☎ 0113 278 0691
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- **Visioneer PaperPort** with Port-Juggler – £150; *PowerPrint 3.0* – £40. Steve ☎ 01869 338013
- **4Mb 72-pin SIMM,** due to upgrade of Performa 6200 PowerMac – £40, inc postage. ☎ 01732 357157
- **LCIII** 4/160 CPU, keyboard, mouse, as new, no monitor – £425; NEC double-speed CD-ROM drive, boxed, leads, manuals, light home use, perfect – £75. Grantham ☎ 01476 572134
- **7100/66** 24/350 CD, 14-inch Trinitron monitor, keyboard, StyleWriter II, A4 ArtPad, System 7.5.1, boxed, includes hundreds of £'s of software, quick sale due to emigration – £1,400 ono. Dave ☎ 01254 393793
- **PowerBook 5300 CS** 16/1500 and TDK modem, as new – £2,000 ono. ☎ 0161 653 5743
- **LCII** 4/80, System 7.1, 14-inch high-res monitor – £450, or with StyleWriter – £525. Steve ☎ 0191 251 0297
- **Global Village Teleport Gold 14,400bps,** fax modem, boxed, with manual and fax software – £80 ono. Jamie ☎ 0181 482 0654
- **Mac IIci** 8/80, new HD, *RAM-Doubler,* keyboard, mouse, new 14-inch monitor, AppleScanner, software – £495; Lasermax 1000 Typesetter, PostScript (1990) – £500; *PageMaker 5.0* – £100; *FreeHand 4.0* – £100. Rob ☎ 01308 897702
- **PowerMac 8500** (120MHz) 16/2Gb, quad-speed CD-ROM drive, composite video in and out, CD-quality stereo sound – open to best offer. ☎ 0116 243 2092
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- **Apple IInt laser printer,** 8ppm, 2Mb memory, PostScript – £185. Bucks ☎ 01753 643309
- **LC** 4/40, colour monitor, mouse, keyboard – £350; ThunderCache Accelerator for LC/LCII (32MHz), FPU – £130. *ClarisWorks 3* – £30. Tony ☎ 0117 907 9362
- **PowerBook Duo 280** 12/200, StyleWriter 1200, floppy dock, drive and 14,400bps modem, plus software and books – £950 ono. ☎ 01438 314758
- **4 x 4Mb 30-pin SIMMs,** 4 x 1Mb 30-pin, four months old, SCSI 540Mb hard drive. Mirjana ☎ 0181 673 9618
- **PowerMac 6100/60** 8/250 CD, software, excellent condition – £640; Geoport modem – £40. Tim, York ☎ 01904 638959
- **Agfa XC305 full colour photo-copier/printer** (Canon CLC300), full service history, low mileage, a bargain – £4,500. Nick ☎ 01308 456321
- **Performa 630** 8/350 CD, keyboard, 15-inch multi scan monitor, excellent condition, *Microsoft Works 4, Myst,* screensaver and pre-installed *ClarisWorks 2* – £800 ono. ☎ 0191 586 1943
- **Classic** 4/40, VGC, boxed, with manuals, disks, cables, keyboard and mouse. Will deliver within reason – £180. ☎ 01203 667825
- **Performa 630** 8/250, 15-inch colour multiscan monitor, colour HP printer, all software and more, still under warranty – £800 ono. ☎ 01628 474026
- **Performa 400** 10/250, with Formac pro accelerator (33MHz), keyboard, mouse, CD300 and software – £395; Apple 14-inch multiple scan AV monitor, new, never used, bought as part of a package – £185. ☎ 0973 814902 (eves)
- **Video Vision Studio 2,** new and boxed, complete with software, bargain – £2,250. ☎ 01344 422425
- **40Mb Quantum internal hard drive,** full working order, some software installed, including System 7.1 – £25 ono. ☎ 01223 277281 (after 6pm)
- **PowerMac 7100/80AV/CD** 40/700 – £1,750; Quadra 840AV/CD 16/1Gb – £1,500; Super Mac card – £325 ono; 2 x 16-inch Trinitron monitors – £350 each; 14-inch Trinitron – £150 ono; all boxed. ☎ 01752 605857
- **PowerMac 6100/66** 8/250 CD, Apple DOS card fitted with 8Mb, all in box, as new, cost £1,395 – bargain at £550, no offers. ☎ 01375 360131 (eves)
- **IIci** 8/80, 20-inch SuperMac colour monitor, card, keyboard, mouse, NEC double-speed CD-ROM, HP320 colour printer, excellent – offers . ☎ 01661 871342
- **PowerBook 5300C** 16/750, Ethertalk PCMCIA card and video cable, immaculate and boxed – £2,500. ☎ 0181 778 5057 (after 7pm)
- **StyleWriter II** inkJet printer, complete with cables, manuals, disks and two spare cartridges, as new – £120. Staffordshire, Mary ☎ 01782 819825
- **Apple StyleWriter 1500** colour printer, new, in box – £160; Apple Multiscan 14-inch monitor with stereo speakers, two months old – £200. Francis ☎ 0181292 7981
- Original **Newton Message Pad,** 1Mb storage card, fax/modem Mac connection kit, software and manuals, all boxed – £155. Leeds, Chris ☎ 0113 250 2645 (after 4.30pm)
- **LC III** 8/160, 14-inch colour monitor, keyboard, mouse, great starter system – only £400. Ian ☎ 01772 451243 (eves)
- **4Mb 72-pin RAM SIMM** for Mac – £25 ono, can deliver and install. Rory ☎ 0171 735 2951
- **Powerbook 180C** with Apple CD-ROM 300E, StyleWriter II printer, System 7.1, all cables, disks and manuals inc – £1,000 ono. ☎ 0171 924 2069
- **Performa 460** 8/160 CPU and mouse, 12 months old, System 7.5.3, VRAM for thousand colours, software inc *ClarisWorks, PhotoShop LE, Word 5.1, ColorIt! 3.0* – £450 ono. ☎ 0161 438 0804
- **Mac IIcx** 8/100, System 7.1, 20-inch black and white monitor, extended keyboard, mouse, software and fonts – £400. Kingston ☎ 0181 549 1609
- **PowerBook 520** 4/240, System 7.5, *Claris 3, RAM Doubler,* case, plus loads of software, StyleWriter 1200 printer, both as new – £850. Robert ☎ 01224 635173
- **LC** 6/40, Apple 12-inch colour monitor, keyboard, mouse – £465 ono. Jamie ☎ 01462 481792 (days) 01462 742447 (eves)
- **SuperMac Thunder/24 NuBus card** with image processing accelerator, excellent condition – £600 ono. Northampton, Barry ☎ 01604 585853
- **LCII** 8/40, keyboard, mouse – £250; with 14-inch hi-res monitor – £450. ☎ 01787 227331
- **IIsi** 10/250, 14-inch greyscale monitor (portrait) – £350 ono; PowerBook 100 4/40 with carry case – £250 ono. Wakefield ☎ 01132 381384
- **Jetstick joystick,** still boxed, instructions – £29. James ☎ 01592 200699
- **Epson Stylus Pro A4 colour inkjet printer,** software, cables and spare cartridge included, boxed, mint condition, nine months old – £325 inc p & p. R Benson, N Lancs ☎ 01524 733908
- **Classic** 4/80, inc keyboard, mouse and manual – £250. Yorkshire. ☎ 01729 830547
- **HP Desk Writer 510** inkjet printer, perfect condition, adaptor, cable, QuickDraw GX, original packaging – £75. Grimsby ☎ 01472 750594
- **LaserWriter II,** excellent condition, home use only – £300; Canon ION Video still camera, plus disks – £300. Kent ☎ 01959 570976
- **OKI OL850** PostScript laser printer, 4Mb RAM, 8ppm, PC/Mac interface, new toner but needs new drum (refill £80), hence – £200. Richard ☎ 0181 579 7451
- **Performa 475** 8/160 CPU only – £300 ono. Buyer collects. Shrewsbury, Andrew ☎ 01743 709482
- **PowerMac 7100/80** 40/850, CPU only – £1,200 or will consider swap with cash for PCI based Mac prefer 8100. ☎ 0171 607 5390
- **Mac IIcx** 8/80, keyboard, mouse, 20-inch mono monitor – £350. Peter ☎ 0171, 434 3565
- **PowerMac 7100/66** 48/540, CD-ROM, L2 cache, excellent, boxed – £1,600; Epson colour stylus printer 720 x 720dpi, excellent, boxed – £250. John ☎ 01822 840549 (eves)
- **PowerMac 7100/66 CD** 24/350, colour 15-inch monitor, keyboard, external CD, excellent condition – £1,500 ono. Jamil ☎ 01332 360236
- **PowerBook 165** 8/33/500, carry-case, ten applications, System 7.5.1, SCSI cable – £900 ono; colour printer – £100, double-speed CD-ROM drive – £75, mouse – £15, keyboard – £25; *RAM Doubler* – £25. ☎ 0121 308 6620
- **Macintosh 660 AV** 12/500/CD CPU only, includes top DTP/3D and *Authorware, Studio Vision Pro, Cubase Audio* on disk – £1,150; *Alchemy 2.5,* Sample AIFF Editor, no manual – £50. Mark ☎ 0113 246 9254
- **Performa 450** 4/160, StyleWriter, CD-ROM, 14-inch monitor, software, two and a half years extended warranty, realistic price – £650 ono. Bruce ☎ 01422 882387 (eves)
- **Performa 400** 8/80, with 14-inch colour monitor, mouse, keyboard, System 7.1, *At-Ease, ClarisWorks, RAM Doubler* – £375. ☎ 01977 555406
- **Performa 475** 4/250, monitor,

USER GROUPS

Need hands-on help with a Mac problem? Want to swap shareware or freeware, or just meet other Macintosh enthusiasts? Then why not try and find a user group near you.

■ Hampton Court Users Group. Informal group which meets approximately every six weeks to exchange ideas and help each other. ☎ 0181 399 9416 or 0181 940 0673 (MF42)

■ Artists archive and news service. Contact The Research Station ☎ 0181 778 6547 (24hrs) 38,400bps plus Web site at **http.www.metamute.co.uk/r_station** (MF43)

■ Join Mac User Oxford – the largest shareware library in the country. Regular catalogue, technical support, free advertising. SSAE: 30 Sandfield Road, Headington, Oxford, OX3 7RJ. (MF 47)

■ MacLin, E-lans MUG. Meetings every other Tuesday, bimonthly newspaper, for information call +46 (0) 141 220330 or e-mail **omar@motala.mail.telia.com** (MF47)

■ MacHelp. Non-profit helpbank for all your Mac problems. Write to us at: MacHelp – Hermelynster 10, B2610, Wilryk, Belgium, for advice and shareware. (MF47)

Groups are listed here for six issues. The code at the end of the entry is the last issue in which it will appear. Renew your entry by sending in the coupon on page 129. If your group isn't already listed here, send us your details and we'll do the rest. This is a free service for amateur, non-profit-making Mac user groups. MACFORMAT does not endorse or recommend any group and cannot be held responsible for any problems you might suffer as a result of contacting any of the groups advertised here.

If you run a bulletin board, we want to hear from you. We're setting up a separate free listing for Mac-related BBSs on these pages, so fill in the form on page 129 and post it to the usual Reader Ads address.

extended keyboard, mouse and mat, System 7.5, selling to upgrade to 6200 – £550 ono. ☎ 01709 702436

■ **Classic II** 4/40 and software, excellent condition – £350 ono; *FoxPro v2.5*, boxed, all manuals – £60 ono; *RAM Doubler* – £22. S Wales ☎ 01633 864672

■ **LC475** 8/80, *PowerUser*, double-speed CD-ROM drive, keyboard, mouse, cables, manuals, boxed, excellent condition – £400 ono. Michael ☎ 01923 775479 (after 5pm)

■ **Mac SE/30** 4/40, 19-inch grey scale monitor, printer, Targus case and software – £325 ono. Nigel Surrey ☎ 01276 685089

■ **LC475** 12/550, monitor, extended keyboard, System 7.5, CD300E, *ClarisWorks 3*, all manuals – £750. Herts ☎ 01727 869267 (after 6pm)

■ **Apple personal LaserWriter 320,** excellent condition – only light usage, all manuals and software, new toner cartridge. David ☎ 0171 336 8788 (days)

■ **4Mb 72pin SIMM,** excellent condition – £35 ono. ☎ 0141 956 2429

■ **4Mb 72 pin SIMM** – £30; 16Mb 72 pin SIMM – £80, instruction book for a Performa 630/LC wanted – will pay. ☎ 01623 440839

SOFTWARE FOR SALE

■ ***MacMolly Tetra,*** *Kai's Power Tools/ ColorIt!* bundle, *MultiClip Pro 3.1, Avid VideoShop 3.0, Claris Organiser, ClarisWorks 3.0, Grolier Multimedia Encyclopedia, Rosetta Stone, Microsoft Dinosaurs, Leonardo the Inventor, The Animals, Guinness Book of Records, The Tale of Benjamin Bunny, Mavis Beacon Teaches Typing*, Mac magazines; Looking for: *WriteNow 4.0, DataDesk, Kaleidagraph*, any scientific programs, *Filemaker, FoxPro, World Atlas/Maps, Speed Doubler, Hypercard 2.3, Code Warrior*, or anything to swap, unregistered originals only. Markus, ☎ 0131 650 5372 (after 8pm) or e-mail **ebmv88@castle.ed.ac.uk**

■ ***SimCity 2000,*** *Theme Park, 7th Guest, DD²D Collectors Edition* – £15 each or £50 the lot. Pete, N.Wales ☎ 01248 811565

■ ***Where in the World*** *is Carmen Sandiego?* Great for children – £30; *Myst* on CD – £15. Matthew ☎ 0181 744 0433

■ ***Microsoft Cinemania 1995,*** *Lemmings, Prince of Persia* – £10 each or all three for £25. Steve ☎ 01923 225083 (eves and weekends)

■ ***Legend of Kyrandia,*** boxed, played once – £10; *Pocahontas Mystery of the Ancients* – £8 new; *Mysterious World* – £19 boxed, all include p&p. Michael ☎ 01206 868647

■ ***Photoshop 3.04*** – £150; *FreeHand 5.5, Illustrator 6.0, Pagemaker 6.0* – £120 each; *OmniPage Pro 5.0* – £75; *Microsoft Office 4.2.1* – £75; *TechTool Pro, MacTools Pro 4.0* – £30 each; *Now Utilities, QuicKeys, RAM Doubler, Speed Doubler* – £20 each; *Myst, Descent, Daedalus Encounter* – £15 each; *Iron Helix* – £10; *FoxPro 2.6* – £40; *WordPerfect 3.5* – £45; *Claris Impact 1.0* – £20; *ClarisWorks 2.1* – £10; *Norton Utilities 3.1* – £20. Steve ☎ 01869 338013

■ Games on CD-ROM, ***Legend of Kyrandia,*** *Labyrinth of Time, Theme Park, Populous 2, PowerPoker* – £10; two educational children's CDs – £5; *Alone in the Dark* – £21; *FlashBack* – £16; *Prince of Persia 1 & 2* – £15 each; *Indy Fate of Atlantis* – £13; *Monkey Island* – £10, all as new. Lesley ☎ 0141 840 1641

■ ***Aldus Persuasion 3.1,*** boxed, complete with original manuals, disks – £30; *Painter 2.0* original disks, manual – £30. Both can be registered. ☎ 0181 548 0403

■ ***F/A-18 Hornet 2.0,*** brand new, unopened, unwanted Xmas present – £30 ono. ☎ 01343 814402

■ ***Daedalus Encounter,*** *Rock-Rap 'n' Roll, Making Music, Myst, In Bred with Rednex, Peanuts – Yearn to Learn*, all on CD – £18 each or £115 the lot. Ian ☎ 01803 328033

■ ***Myst*** plus *Iron Helix* (free) – £25; *Sim City 2000* plus *Prince of Persia* (free) – £20. Christine Smith. ☎ 01225 810780 (9am-8pm)

■ ***SoftWindows 2.0*** for PowerMac on disks with manuals and box – £95 ono or swap for 250K Level 2 cache memory. Nick ☎ 0141 945 0715

■ ***Sensory Overload*** – £20, original disks boxed with leaflets, good condition. ☎ 0123 2617304 (after 6pm)

■ ***RAM Doubler*** – £35; *ThemePark* – £15; *Sim City* – £12; *Indiana Jones Atlantis* – £12; *Goblins II* – £12; *KidDesk* – £10; *Underware Screen Saver* – £12, all original disks, manuals. David ☎ 01522 882261

■ ***Nisus Writer*** – £80 (unreg); *Claris CAD* – £60; *Sketcher* – £30 (unreg); *Dabbler* – £30; *ClarisWorks 2.0* – £30; *Adobe Audition* – £50; *Catch Word Pro* – £30. ☎ 0171 792 0374

■ ***SoftWindows 2*** for PowerMac on CD-ROM with manuals – £100 ono. ☎ 01797 366446

■ ***OmniPage Direct OCR v 2.01*** – £35; *ColorIt! 3.03* – £20, unwanted bundle pack, both unregistered. ☎ 001691 656195

■ **Bitstream typeface library,** 1,085 fully unlocked fonts on CD-ROM – offers. Somerset, Giles ☎ 01934 712595

■ ***Marathon 2*** – £30; *X-Wing* – £30; *Dark Forces* – £28; *Daedalus* – £16; *Syndicate* – £15; *Dark Seed* – £10; *Iron Helix* – £8; *Kyrandia* – £8. Fife, James ☎ 01592 200699

■ ***Dorling Kindersley Multimedia Encyclopedia of Science,*** brand new, unregistered – £20 inc p&p. Chris ☎ 0113 250 2645 (eves)

■ ***Claris Organiser*** – £20; *Now Utilities/ Contact/Up-To-Date 4.2/2.1* – £15 each; *ClarisWorks 3.0* – £40; *Quicken 5.0* – £25; *Filemaker Pro 2.1* – £45; *Fax S+F 3.0* and *Autopak* – £30; *FoxPro 2.5* – £45; *MacTools 3.0* – £20; *Soft PC* with Windows – £50; *SoftWindows* – £75; *Quicken 4.0* – £15; *Access PC 3.0* – £15; *Campus CD with PC Exchange, Managing Your Money, Retrieve It, After Dark, Deneba Artworks, Far Side Daily Planner, Spectre* – £25 plus free CD, many extras. ☎ 0161 761 7874

■ ***ChemOffice Pro 3.2,*** *ChemDraw 3.5.1, Chem 3D 3.2, ChemFinder 3.0*, original disks, plus manuals – £350. Mike ☎ 01279 424129.

■ ***ClarisWorks 3.0,*** boxed, complete – £20 inc p & p. Geoff ☎ 0161 427 6998

■ ***Prince of Persia 2*** – £10; *Spectre Supreme* – £10, boxed with manuals. Chris ☎ 0151 677 3973

■ ***Animation Master*** 3D modelling and animation, with *Letterblox 3D-type* – £230; *Design Workshop, 3D Architecture, Flythroughs* – £150. ☎ 01734 623258 (after 6pm)

■ ***Extreme 3D,*** new, boxed, unregistered – £200. ☎ 0171 207 9490

■ **System 7.1 disks** for all non-PowerMac models, with manuals – £10; *SAM 3.5*, with recent update, sealed box – £8. David ☎ 0181 769 2760

■ ***Adobe PhotoShop LE,*** unopened and unregistered – £35. Julian ☎ 01283 561867

■ ***UniQorn 1.0.1,*** new, highly rated DTP package, boxed and unregistered – unwanted prize – £350 ono (RRP over £1,000). ☎ 01480 477244

■ *Dark Forces* CD, *Full Throttle* CD – £20 each, boxed with manuals, good condition. ☎ 01522595152 (after 6pm)

SWAP SHOP

■ MACFORMAT, Macworld, The Mac CD-ROMs, mainly '94-'95, will swap for audio CDs. ☎ 01745 832134

■ *Apple Magic* collection of three CD-ROMs (with box and manuals), swap for CD-ROM reference works eg: *D-D Atlas* or *Asterix Language Course*. Richard ☎ 0171 352 1253

■ *Now Utilities 5.0.1*, boxed, complete with manuals, unregistered, will swap for OCR software: *Omni Page* or *Text Bridge*. Gerry ☎ 01232 763858

■ *Children's Atlas of World Wildlife* CD-ROM by Rand McNally, swap for any other children's software, Brøderbund title preferred. ☎ 01752 369577

■ Advanced *Adobe Photoshop 'Classroom in a Book'* official training guide with CD-ROM, unused and complete, swap for educational CD-ROM, especially Dorling Kindersley. ☎ 01752 369577

■ ***SoftWindows 3.0*** CD for *FileMaker Pro 3*. ☎ 01782 512593 (after 6pm)

WANTED

■ Mastering ***Aldus FreeHand 3.3*** – your price paid. Colin ☎ 0121 707 9776

■ **BBC Basic v3** programming language and emulator for the Macintosh 3.5 disc – offers. ☎ 01483 729879

■ CD-ROM of the ***Dead Sea Scrolls,*** bible and religious software on CD-ROM and CD-ROM of *Watchtower* literature. Robert ☎ 01726 812209.

■ **Flatbed colour scanner** for Power PC, mid-range quality, preferably Umax, Epson, HP, must be good condition. John ☎ 0171 229 1050

■ **Strategy games,** intelligent strategy and educational software – science. Stornaway. ☎ 01438 365138 (2pm-8pm)

■ **Video card,** NuBus, able to drive 17-inch monitor if possible for 6100/ 60. Bristol, Nigel ☎ 0117 907 1301 or ☎0117 923 2731

■ Any version ***Microsoft Office*** or separate *Word, Excel* programs for unemployed, disabled person – limited funds available. Kevin ☎ 01604 756035

■ ***PlainTalk*** **microphone,** good condition and price – £10 or under. Glasgow, Dougi ☎ 0141 357 2127

■ ***Power Print,*** *Maclink Plus/Bridge* for System 6. Is there anyone out there with an original *Falcon F-16* sim by Holobyte for MacPlus? ☎ 01480 406415 (eves)

■ ***PlainTalk*** **microphone** required, also interested in buying any Microsoft CD-ROM titles. ☎ 01752 369577

■ ***ClarisWorks 4.0*** or swap for *RAM Doubler* and *Speed Doubler*. ☎ 01782 512593 (after 6pm)

■ ***Syndicate*** floppy disk – will pay around £15 or swap for my good condition *Populous II*. Glasgow, Owen ☎ 0141 339 2700

■ **System 6** or earlier software wanted for MacPlus. ☎ 01927 791740

BOOKS AND MAGAZINES

■ **MACFORMAT,** MacUser, Macworld magazines – July '95 to June '96, CD editions, over 70 magazines including six MacActions, cost £290 – sell £100 ono. ☎ 0181 552 4874

■ Magazines: **MACFORMAT 10/93 to current,** MacUser 5/93 to current; every cover CD from MACFORMAT, MacUser, The Mac and Macworld (84 total) – offers. Mike ☎ 01279 424129

■ 15 assorted Apple Mac mag **cover CDs** – £10 inc p&p. ☎ 0181 523 8058 or 0973 110645 (mobile)

Buying advice

Whether you're buying by mail or in person, here are a few basic, sensible precautions to bear in mind. Note that everything here applies to buying from a business; most of it does *not* apply to buying from a private seller in MACFORMAT's reader ads pages.

Always be absolutely clear about what is included in the price – postage and packing? Any necessary cables, etc? VAT? By law, an advert must say *explicitly* if VAT is not included; if it doesn't, VAT *is* included. But this could be in the small print – so make sure you read it all! If you're buying in person, check that everything is there and that it all works properly before you leave the shop. If you're buying by mail, ring the supplier first to confirm the price and availability, and ask what your options will be if there should be any problem. Find out when you can realistically expect delivery. Always keep all the receipts and make records of all correspondence, whether it's by mail or by phone.

How to protect yourself

If you are buying goods of more than £100 in total value, use a credit card if possible. That way, if anything goes wrong, you'll be legally entitled to claim against the credit card company as well as the seller, even if the seller's gone bust. You might also get extra insurance – ask your credit card company.

If you don't have a credit card, pay by cheque or postal order (ask at your local post office). Never send cash through the mail – it can't be traced if it gets lost, you can't stop payment, and even if you have proof of posting, you can't prove how much you sent.

Keep records. If you're paying by credit card, keep a note of the exact time of the order and ask for an order number. If you're paying by cheque, make sure you fill in the details of the date, amount and payee's exact name on the stub – and keep it!

When a mail order arrives

Check everything carefully. If anything is missing, contact the supplier immediately. If something doesn't work, make all the obvious checks (the fuse, etc), but don't try to repair it. If there's anything you're not happy with, don't use it – if you do, you could be deemed to have accepted it.

If there's a problem

Whether you bought it by mail or in a shop, the law says a product must be:

1. 'of merchantable quality' (that is, broadly speaking, it must actually work);
2. 'as described' (in the advert or in person – and this criterion also applies when you're buying from a private seller); and
3. fit for the purpose for which it was sold or for the purpose you specified when you ordered it.

If it fails to meet any or all of these three criteria, then you are entitled to return the goods for a refund, receive compensation for all or part of the value, or get a replacement or free repair, depending on the seriousness of the defect. These are the 'statutory rights' that adverts always say are 'not affected' by any extra guarantees. The supplier cannot change or deny these rights.

How to complain

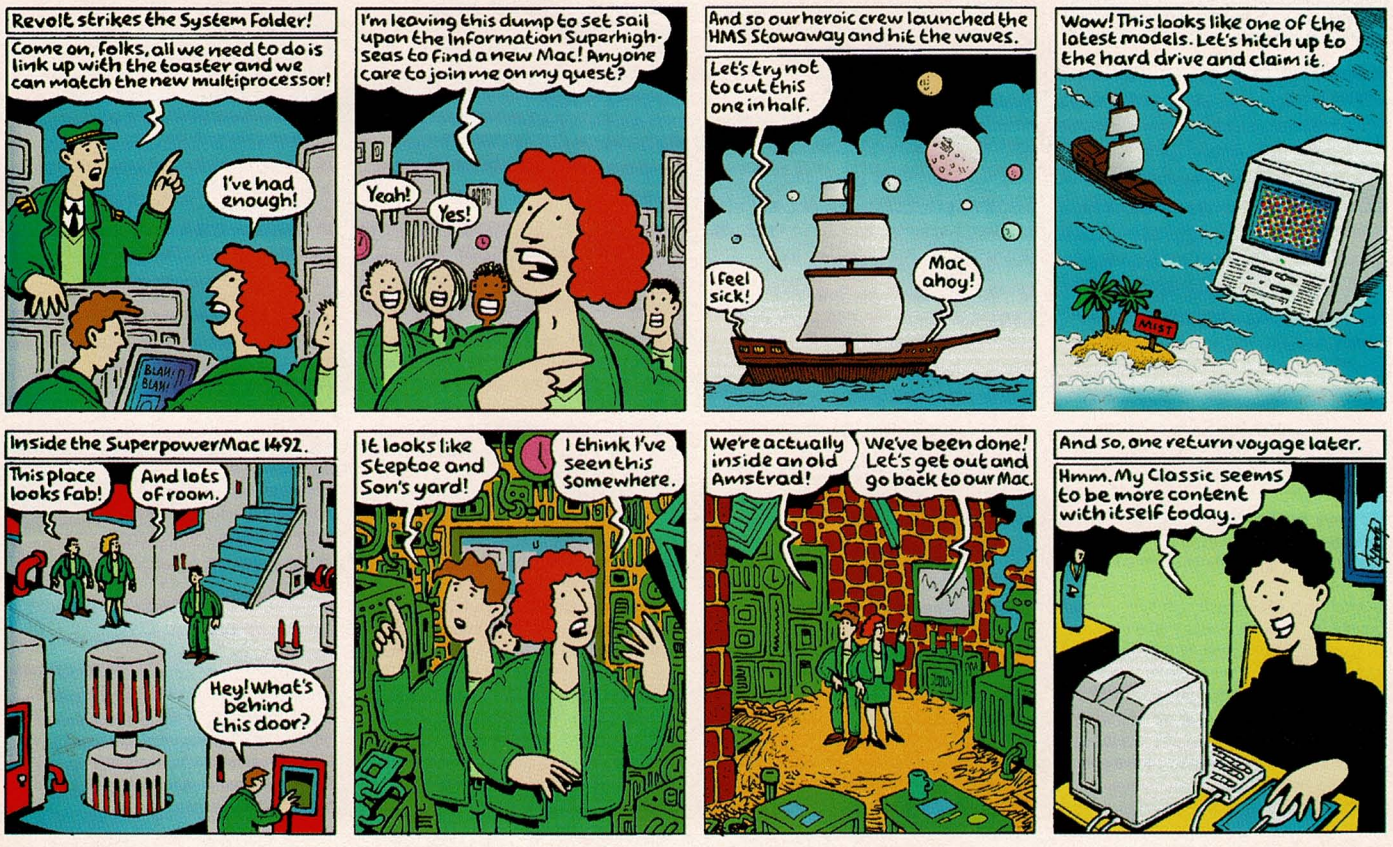
If you're not happy about something, always contact the supplier first and politely explain your problem. Most problems are sorted out at this stage with no fuss. But if yours isn't, put your complaint in writing, clearly stating your problem and including any relevant dates, etc, and send it to the manager or owner – ask for the correct name and job title. Give the supplier a reasonable time to reply – say, ten days or so.

If the problem is still not resolved, you may need to take some sort of legal action to enforce your rights. This need not cost you a lot of money. You should seek advice from a solicitor (ask about the free advice scheme) or from one of the following organisations (check in your local telephone directory):

- Citizen's Advice Bureau;
- Trading Standards Office (listed under your local council);
- Office of Fair Trading; or
- County Court (ask someone there about the 'small claims procedure').

The Classic System Crew

By Bob Lynch


Revolt strikes the System Folder!
Come on, folks, all we need to do is link up with the toaster and we can match the new multiprocessor!
I've had enough!
BLAH! BLAH!
I'm leaving this dump to set sail upon the Information Superhigh-seas to find a new Mac! Anyone care to join me on my quest?
Yeah!
Yes!
And so our heroic crew launched the HMS Stowaway and hit the waves.
Let's try not to cut this one in half.
I feel sick!
Mac ahoy!
Wow! This looks like one of the latest models. Let's hitch up to the hard drive and claim it.
MIST
Inside the SuperpowerMac 1492.
This place looks fab!
And lots of room.
Hey! What's behind this door?
It looks like Steptoe and Son's yard!
I think I've seen this somewhere.
We're actually inside an old Amstrad!
We've been done! Let's get out and go back to our Mac.
And so, one return voyage later.
Hmm. My Classic seems to be more content with itself today.

Mr. Memory

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72 Pin SIMMs

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16Mb	89.00
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64 Mb DIMM	490.00

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512K VRAM	24.70
1Mb VRAM DIMM	38.00

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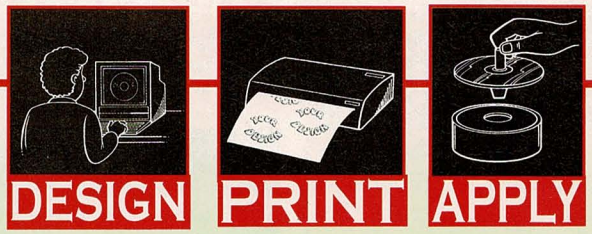

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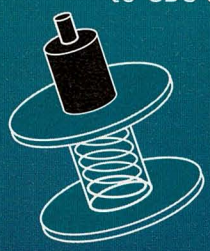

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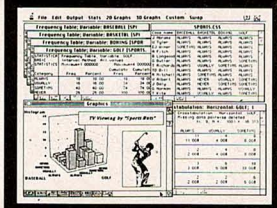

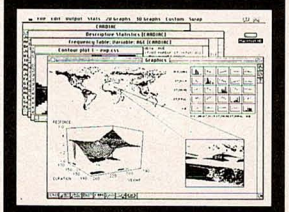

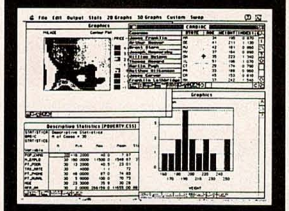

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MACFORMAT 43

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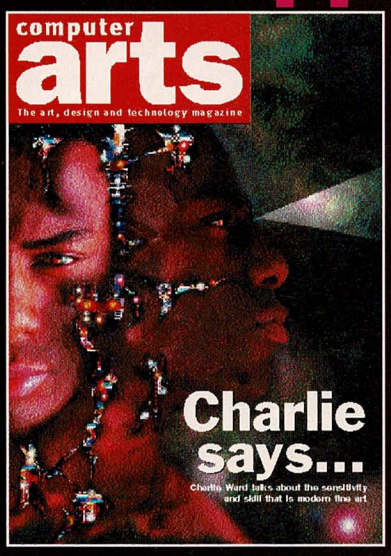
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■ *CorelDraw 6* – the leading PC art package arrives on the Mac, and we put it through its paces (this time for sure!) ■ How to make the power of *FileMaker Pro 3* work for you ■ *SimIsle, Safecracker* ■ And much more in MACFORMAT – the magazine that helps you get *more* from your Mac!

NEXT ISSUE

Win a 1Gb Iomega Jaz drive or a Zip drive

They're the most exciting data storage devices since the floppy! We have two Jaz drives plus two Zip drives to be won, courtesy of Iomega and The Mac Zone.

Could you fill a Gig of storage space? Win this brilliant Iomega Jaz drive and you could find out for yourself!

Imagine a data storage device which was as fast as a typical hard drive, with just as much capacity, but which you could simply swap like a floppy when it got full. That's the amazing Jaz drive from Iomega.

The Jaz is a surprisingly compact device which uses 3.5-inch cartridges, each of which can store as much as a *gigabyte* of data – 1,024Mb. What's more, access times are comparable to those you'd expect from a hard drive (the average sustained transfer rate quoted is 5.5Mb per second), so you get the best of both worlds: speed plus portability in one robust package! It's ideal for just about everything you'd do with a hard drive.

The Zip drive is the Jaz's little brother. It also uses 3.5-inch cartridges, but a different kind (not interchangeable with the Jaz's). Zip cartridges are about the same size as floppy disks but slightly thicker, and each holds a still-impressive 100Mb of data. Access times aren't as fast as those for the Jaz (the Zip's sustained data transfer rate is up to 1.4Mb a second), but it's perfect for backing up those precious files or transporting large documents reliably and safely.

Or there's its little brother, the dazzling Zip drive, with 100Mb of storage. There's two of each to be won!

A Jaz drive would normally cost you around £470 or more, including a cartridge, and a Zip drive with cartridge about £180. We have *two of each* of these amazing little devices to be won, complete with one cartridge each, courtesy of Iomega, the developer of both of these ground-breaking storage technologies, and The Mac Zone, a leading retailer of Mac-related hardware and software.

To win one of these brilliant prizes, all you have to do is answer the three simple questions below and send us your entry on a postcard or the back of a sealed envelope (with your name and address!). The first two entries drawn after the closing date will each win a Jaz drive with 1Gb cartridge, and the next two will each win a Zip drive with 100Mb cartridge. The closing date is Friday 4 October 1996.

The rules

Employees of Iomega, The Mac Zone, Future Publishing Ltd and associated companies, and their families, are not eligible to enter. Multiple entries are not allowed unless attached to a high-capacity data storage device such as a working external hard disk of at least 40Mb capacity, a removable cartridge of at least 44Mb capacity, or a filing cabinet with at least three drawers. The editor's decision is final, no correspondence will be entered into, and there is no cash alternative. Please state if you don't want your name included on a mailing list. **MF**

THE QUESTIONS

1. How much data can a single *Jaz* cartridge hold?
(a) 1Gb
(b) 100Mb
(c) 5.5Mb

2. Which of the following offers the fastest average data transfer rate?
(a) An Iomega Zip drive
(b) An Iomega Jaz drive
(c) An impromptu jazz band

3. Which of the following does The Mac Zone *not* sell?
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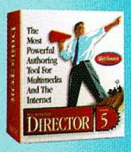

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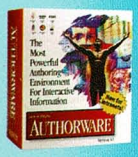

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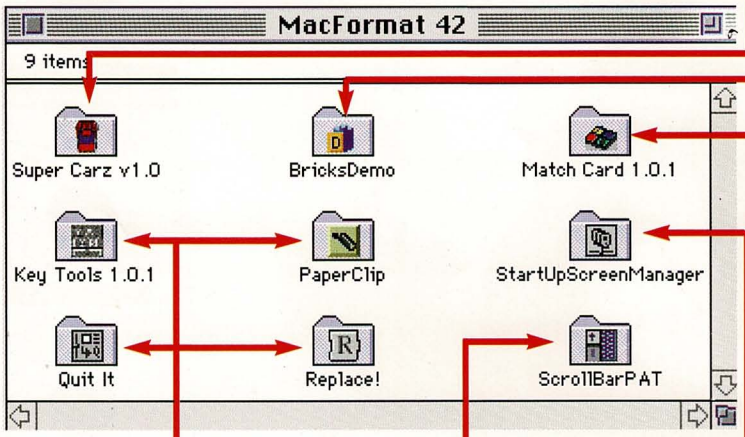
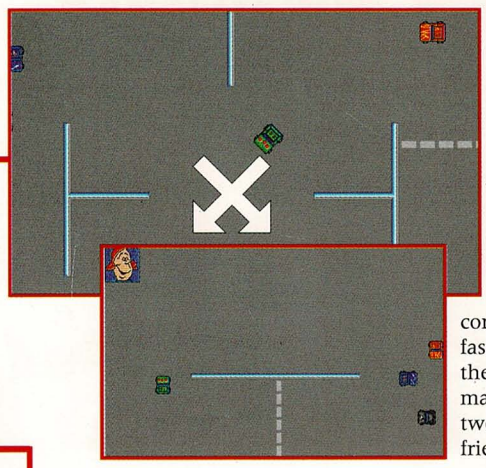
On the Disk this issue...

One of the most packed Cover Disks ever with nearly 4Mb of software crammed in. There's a great racing game in the shape of *Super Carz*, building block fun with *Bricks* and, to help kids learn the alphabet (or just test your memory!) there's *Match Card*. Plus, to help you get more from your Mac, there's a whole range of utilities to get stuck into.



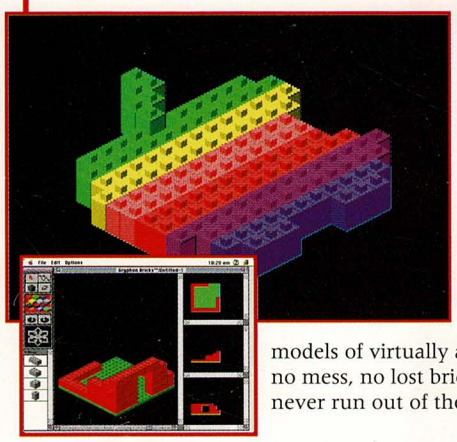


Super Carz

Racing car game

Requires: *LC475 or better, 2Mb of free RAM, System 7.0 or later, 14 inch colour monitor.*

Racing game fan and MACFORMAT reader Fenwick Cooper wanted a simple but fun-to-play racer, so he wrote his own! With simple controls to steer your car, it's fast racing fun all the way to the finishing line. For maximum fun try out the two player option with a friend. You'll be addicted!

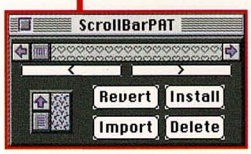


Bricks

Building block simulator

Requires: *any colour Mac, 2Mb of free RAM, System 7.1 or later.*

No doubt when you were younger you played with brightly coloured building blocks. Now you can do the same on your Mac, thanks to the *Bricks* demo. Armed with an endless supply of bricks in a multitude of colours, you can create models of virtually anything you want. There's no mess, no lost bricks and – best of all – you never run out of the right colours!

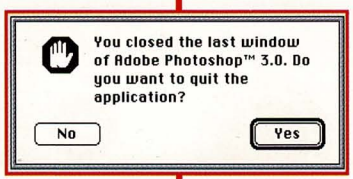


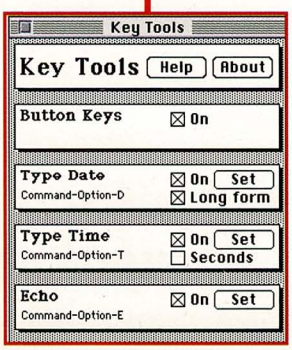
ScrollBarPAT

Desktop utility

Requires: *any Mac, System 6.08 or later.*

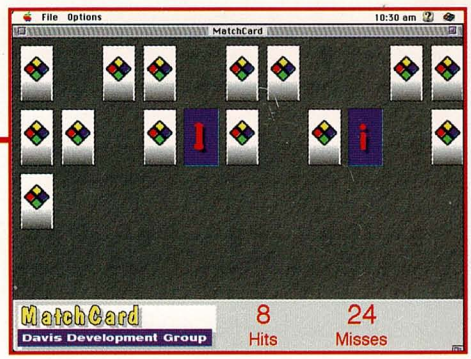
If you want your Mac to look unique, try installing this easy to configure software. *ScrollBarPAT* enables you to install a custom pattern into the scroll bar. You can use one of the 20 included patterns or if you prefer design your own.





Utilities

- *PaperClip* gives you a last line of defence when you're having trouble ejecting a floppy disk, removing almost any troublesome disk.
- *Quit It* is a handy Extension which asks you if you want to quit an application when it has no more active windows open.
- *Key Tools* gives you a range of options to set up keyboard short-cuts for commonly repeated typing chores such as entering the date.
- *Replace!* gets around one of the minor annoyances of the Mac by making the **Replace** button, rather than the **Cancel** button, the default option when you use **Save As**.

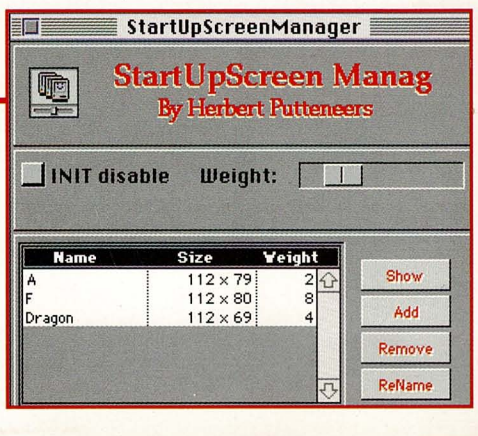


MatchCard 1.0.1

Alphabet card game

Requires: *any colour Mac.*

A great way to teach young Mac fans the letters of the alphabet. The game uses a familiar game plan where you must turn over cards to locate matching pairs. To succeed you must match up each capital letter with its lower case counterpart.



StartUp-Screen Manager

Start-up utility

Requires: *any Mac, System 7.0 or later.*

Not only can you have a custom Startup Screen to brighten up those minutes while you wait for your Mac to get going, but now with *StartUpScreen Manager* you can randomise your Startup Screens so you'll never know which image is going to appear.